

EXHIBIT B-5.V



Municipal Activities Program

Integrated Pest Management Approaches

Integrated Pest Management Approaches

Module B-5.V

Audience: Stormwater Managers and Field Personnel
Time: 2-3 hours





Integrated Pest Management (IPM) Approaches

Name
Affiliation
Location
Date



Introduction



Introduction

Water Resources are Crucial to Orange County



Water provides recreation for Orange County residents.




It is home to many types of wildlife.

It attracts tourists, boosting the local economy.





Introduction

Potential Impacts



- Urban runoff and stormwater pollution can impact the ocean, beaches and creeks, harming wildlife and impairing peoples' ability to enjoy the water.



Introduction

Sources of Pollution


- Homes
- Businesses
- Construction sites
- Municipal facilities



Introduction

Path of Pollutants

- Potential pollutants may run off driveways, streets and gutters into stormdrains.
- The stormdrains lead to creeks and rivers, where pollutants can flow untreated into the ocean.




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Introduction

It's Everyone's Responsibility

- Urban runoff and stormwater pollution is not just a coastal issue-it starts in all regions of the community and affects water quality from the mountains to the ocean.



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Introduction

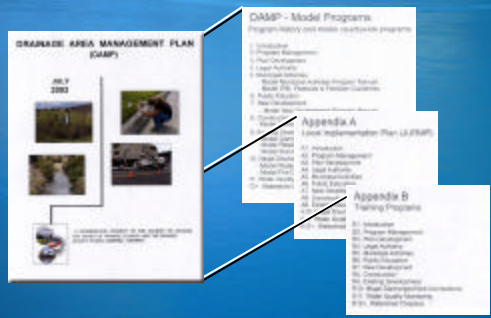
It's Your Responsibility

- Everyone must help to reduce urban runoff and stormwater pollution.
- This training will help explain what you can do while conducting IPM activities to help implement the Orange County Stormwater Program.

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Introduction

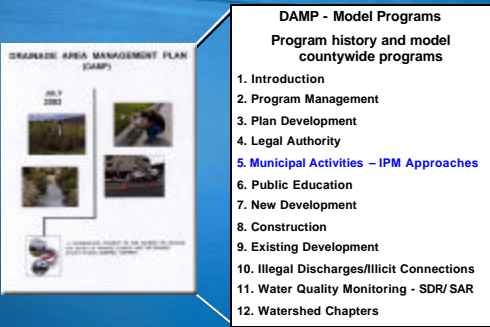
OC Stormwater Program



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Introduction

Program Elements




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Introduction

Regional Board Boundaries within Orange County

Region	Watershed	Identifier
Region 8 Santa Ana	CoyoteCreek	A
	Carbon Canyon	B
	Westminster	C
	Talbert	D
	Santa Ana River	E
	San DiegoCreek	F
	Newport Bay	G
	Los Trancos / Muddy Creek	H
Region 9 San Diego	Laguna Canyon	I
	Aliso Creek	J
	Salt Creek	K
	San JuanCreek	L
	Prima Deshecha & SegundaDeshecha	M



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Introduction

Training Outline

- Introduction – History and Scope of IPM
- IPM Program Components
 - Prevention
 - Pest Identification
- Break-
- IPM Program Components Continued
 - Monitoring
 - Injury Levels and Action Thresholds
 - Pest Control Tactics
- Putting the Components Together

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Introduction

Training Modules

Program Management	Integrated Pest Management
Pesticide Management	Fertilizer Management

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Introduction

Training Goal

Provide an overview of the components necessary to implement a comprehensive IPM program for municipal landscape activities.

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Introduction

Overall Approach

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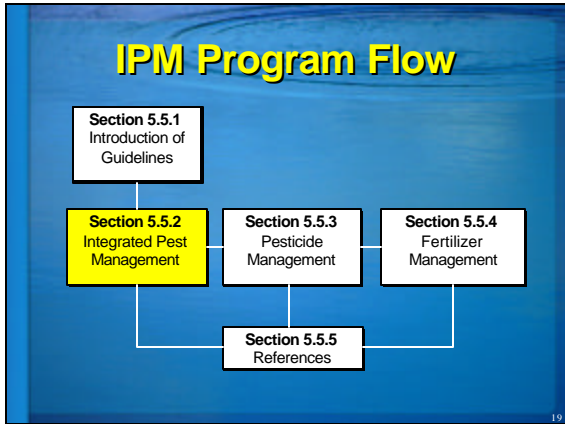
Introduction

Key Terms

- Integrated Pest Management
 - a strategy to prevent and suppress pest problems with minimum adverse impacts on human health, the environment, and non-target organisms.

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Introduction to IPM

Section 5.5.2.1

- Historical trends in pest control.
- Role of pesticides in an IPM Program.
- Relationship of IPM to water quality.

Section 5.5.2.2

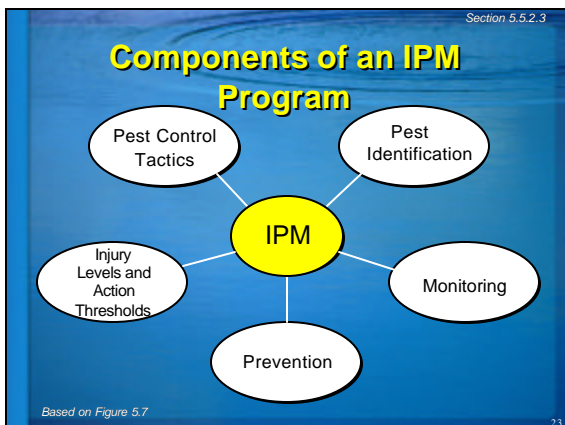
Table 5.14

Advantages and Disadvantages of a Pesticide-Based Program Versus an IPM-Based Pest Control Program.

Pesticide Based Pest Control		IPM Based Pest Control	
Advantages	Disadvantages	Advantages	Disadvantages
Quick suppression of pests.	Loss of natural controls.	Long-term control.	Training is required to identify pests and natural enemies.
Labor is only for spraying.	Not long-term.	Safer to the environment.	Must have knowledge of pesticides and their effects on other organisms.
Not much preparation or follow-up needed.	More pesticides in environment.	Pesticides can be used (only used as last resort).	Must maintain a record-keeping system.
	Contamination of waterbodies from runoff.	Reduces disruption of natural enemies.	Must scout regularly.
	Pesticide safety for applicators, public, animals.	Reduces contamination from runoff.	Labor is required for monitoring.
	Often get outbreaks of other pests.	Less exposure to pesticides.	
		Can be proactive in pest control actions.	

Questions?

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Section 5.5.2.5

Integrated Pest Management

Prevention

- Vital component of IPM program.
- Importance of landscape design.
 - Choice of plant species.
- Planting Practices
- Maintenance Practices
 - Irrigation
 - Fertilization
 - Mulching

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Section 5.5.2.4.

Integrated Pest Management

Pest Identification



- Essential for choosing the correct pest control tactic(s).
- Verify the cause of the damage.
- Eliminate abiotic factors as the cause.




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Section 5.5.2.4.

Integrated Pest Management

Pest Identification

DO NOT HESITATE TO SEEK HELP FOR IDENTIFICATION OF PESTS!







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Questions?

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Section 5.5.2.6.

Integrated Pest Management

Monitoring




Monitoring for weeds.

Dislodge Adult Invertebrates by Branch Beating

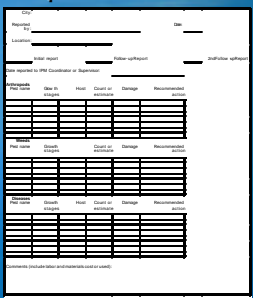
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Section 5.5.2.6.

Integrated Pest Management

Scouting Report

- Keep records of:
 - Pest problems,
 - Population trends,
 - success of suppression techniques.
- Provides a method of anticipating seasonal infestations.



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Section 5.5.2.6.

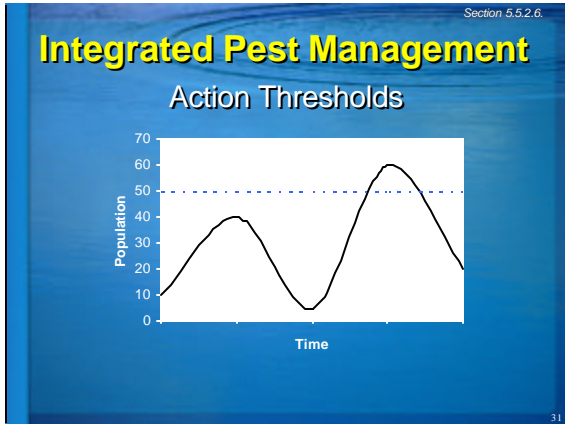
Integrated Pest Management

Action Thresholds




Heavy Infestation

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- Section 5.5.2.8.
- ## Integrated Pest Management
- ### Cultural
-
- Landscape design.
 - Prune properly.
 - Meet irrigation requirements.
 - Fertilize appropriately.
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- Section 5.5.2.9.
- ## Integrated Pest Management
- ### Mechanical
- Barriers
 - Machinery
 - Pruning of infested plant material.
 - Mulching
-
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- Section 5.5.2.10.
- ## Integrated Pest Management
- ### Physical
-
- Pruning to open canopy.
 - Protect from sun.
 - Proper drainage.
-
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- Section 5.5.2.11.
- ## Integrated Pest Management
- ### Biological
- Use of beneficial organisms.
 - Predators
 - Herbivores
 - Parasites
 - Pathogens
 - Classical, conservation, or augmentation.
 - Sensitive to pesticides.
-
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Section 5.5.2.12

Integrated Pest Management




Chemical



- Used to control, prevent, or repel pests.
- Avoid broad-spectrum, persistent pesticides.
- Consider all available alternatives before using a pesticide.
- Always follow the label directions.




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Questions?

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Conclusion

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Section 5.5.2.3

Putting the Components Together



IPM

- Pest Control Tactics
- Pest Identification
- Monitoring
- Prevention
- Injury Levels and Action Thresholds

Based on Figure 5.7

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Conclusion

Conclusion


- A properly implemented IPM Program reduces pesticide inputs thereby minimizing the potential risk of polluting waterbodies.
- Prevention and proper pest identification reduces unwarranted or incorrect pesticide applications.
- Select pest control methods that are effective while at the same time are least likely to have an adverse effect on the environment (i.e. water quality).

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Conclusion

Remember

- Everyone benefits from clean water, and everyone has a responsibility to protect it by reducing urban runoff and stormwater pollution.



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Conclusion

Resources

For more information:
Visit www.ocwatersheds.com
or
Call the Orange County Stormwater
Program at 714-567-6363.

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Conclusion

Thank You!

Thank you for attending and
learning how you can help!

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Conclusion

Handouts

- Meeting Agenda
- Hard copy of presentation
- UC ANR Publications Catalog
- Contact list

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