

# Urban Pest Management & Green Building: “Organic” or “Sustainable” or “IPM”

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Agricultural & Environmental Safety  
Texas AgriLife Extension Service  
Texas A&M University







12<sup>th</sup> Floor Manhattan, NYC Bldg.















# Urban Pest Management

- Outdoor: First line of defense for pests
- Indoor: Residents and/or Office Workers
  - Pests introduced from outside
  - Pests introduced by people (food, potted plants, etc.)
- Water Quality/Air Quality Issues
  - Introduction of Pesticides and/or carriers: Dusts, Volatiles
  - Reduction of Asthma Triggers: Pests and/or Pesticides





# “Organic” or “Sustainable” or “IPM”



# “Organic”???

- Texas Structural Pest Control Service, a division of Texas Department of Agriculture, is the regulatory agency in Texas that has authority over anyone performing structural pest control in the state.
- <http://www.agr.state.tx.us/spcs>



# TDA/Structural Pest Control Service [§7.152]

- A licensee must not use false, misleading or deceptive advertising. Examples of statements or representations which constitute false, misleading or deceptive advertising include the following:
  - (8) claims as to the safety of a pesticide or its ingredients, including statements such as "free from risk or harm", "safe", "non-injurious", "harmless", or "non-toxic to humans and pets", with or without such a qualifying phrase as "when used as directed";

# TDA/Structural Pest Control Service [§7.152]

- A licensee must not use false, misleading or deceptive advertising. Examples of statements or representations which constitute false, misleading or deceptive advertising include the following:
  - (9) claims that the pesticides and other substances the licensee applies, the application of such pesticides, or any other use of them are comparatively safe or free from risk or harm;

# TDA/Structural Pest Control Service [§7.152]

- A licensee must not use false, misleading or deceptive advertising. Examples of statements or representations which constitute false, misleading or deceptive advertising include the following:
  - (10) claims that the pesticides and other substances the licensee applies, the applications of such pesticides, or any other use of them, are "environmentally friendly", "environmentally sound", "environmentally aware", "environmentally responsible", "pollution approved", "contain all natural ingredients", "organic", or are "among the least toxic chemicals known";



# Reduced Impact Pest Control Service (RIS) [§7.153]

- (a) A business may qualify to use the Reduced Impact Pest Control Service designation by having all certified applicators who will be supervising the service attend a continuing education course approved by the department for Reduced Impact Service. All licensed employees will have verifiable training from a certified applicator who has attended the course and is approved to provide such training.

# Reduced Impact Pest Control Service (RIS) [§7.153]

- (b) The goal of Reduced Impact Pest Control Services is to effectively control pests and to provide customer satisfaction while seeking to minimize individual's exposure to chemical pesticides through the application of Integrated Pest Management principles.

# Reduced Impact Pest Control Service (RIS) [§7.153]

- (d) Notwithstanding §7.152 of this title (relating to Advertising), the following words may be used in an advertisement for services by a business authorized to provide Reduced Impact Service: Reduced Impact Service; Reduced Impact Methods; Reduced Impact Techniques; Reduced Risk Methods; Reduced Hazards; Reduced Exposure; Reduced Impact Specialist; Environmentally Sensitive Services; Environmentally Sensitive Programs; Environmentally Friendly; Environmentally Sound; Environmentally Aware; Environmentally Responsible or any other words descriptive of the service which are not specifically listed as prohibited in §7.152 of this title and which can be substituted by the business's adherence to the goals of Reduced Impact Service.



# Agricultural and Environmental Safety Unit



## Agricultural and Environmental Safety



Manual Order Forms

What License Do I Need?

Category Trainings

Pesticide Safety Education Resources

Weed Identification and Management

Public Health and Vector Control

Structural Pest Management and Education

Emergency Response and Planning

Additional Education Opportunities

Texas IPM Contact

Staff

Links

<http://www-aes.tamu.edu>  
979-845-3849

# BUM STEER AWARDS!

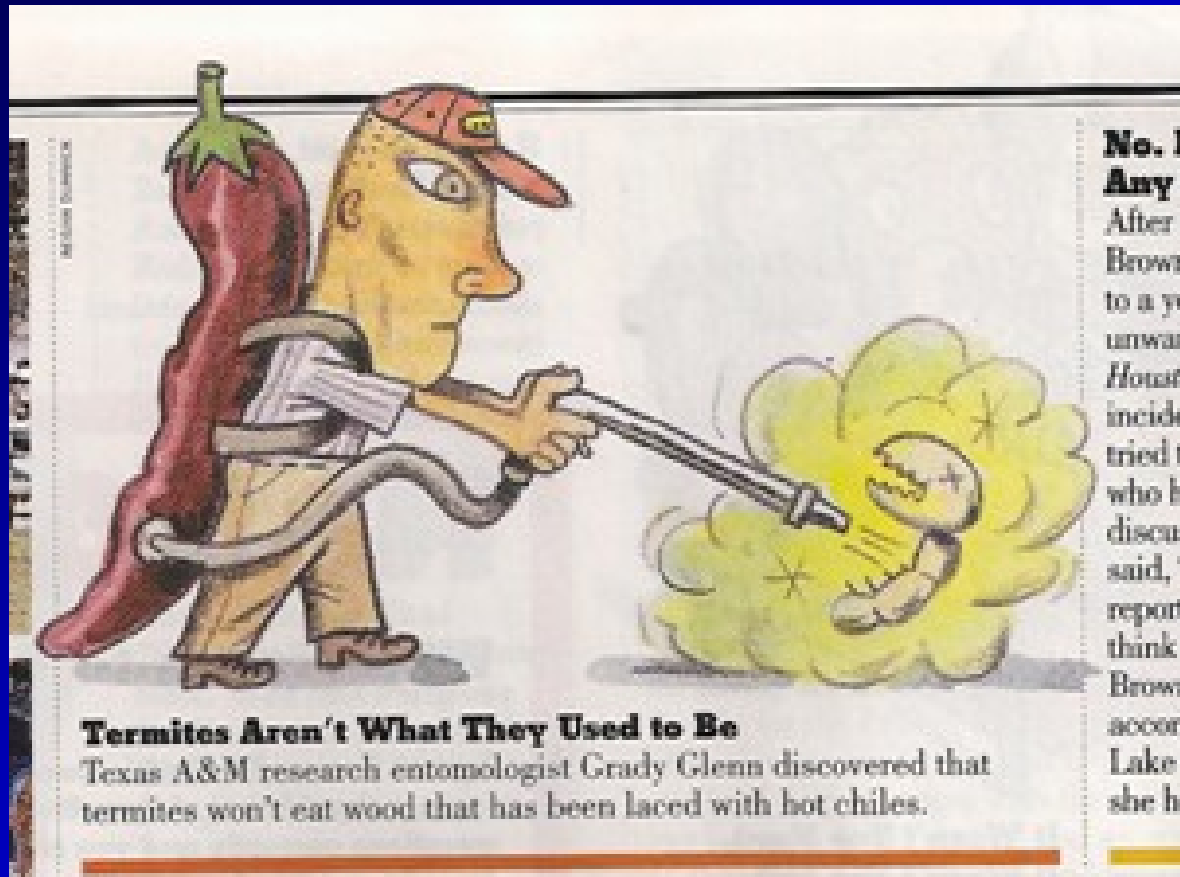
# Tex Monthly

JANUARY 2000 • \$3.95



Matthew McConaughey

# BONGOS NAKED!



“Rapidly Renewable Materials”

# Rural & Urban Environments

- Best Management Practices (BMPs) for Exterior Maintenance Programs
- Efficacy (Efficiency) of Pest Management
- Indoor & Outdoor Environmental Quality
- Sustainability
- LEED: Leadership in Energy and Environmental Design
- U.S. Green Building Council



# Grow Green Program: City of Austin and Texas AgriLife Extension Service



[www.ci.austin.tx.us/growgreen](http://www.ci.austin.tx.us/growgreen)

<http://www.growgreen.org>

# Grow Green Program

## Healthy Yards and Clean Water



Gardening Basics

Landscape Problems

Plants

Gardening Basics

Landscape Problems

Plants



**Watershed Protection  
Development Review**



**AgriLIFE EXTENSION**  
Texas A&M System

# Grow Green Program



landscaping for clean water

- Home
- Hot Topics
- About Us
- Partners
- Retailers
- Gardening Basics
- Landscape Problems
- Plants
- Integrated Pest Management (IPM)
- Events/Training
- Data/Studies
- Related Programs/Resources
- Watershed Home

## Landscape Problems

While most landscape problems can be avoided by proper plant placement, installation and maintenance, the fact sheets below will help you learn how to identify many of the common disease and insect problems that we find in central Texas. The fact sheets will help you provide the least toxic solutions.

 To link to PDF's download Adobe Acrobat Reader here!

| OUTDOOR PESTS | DISEASES                     | LAWN PROBLEMS  |
|---------------|------------------------------|----------------|
| Aphids        | Lawn Problems                | Lawn Diagnosis |
| Beetles       | Bacterial Leaf Spot          | Weed and Feed  |
| Caterpillars  | Brown Patch                  | Chinch Bugs    |
| Chinch Bugs   | Cotton Root Rot/<br>Root Rot | Grubs          |
| Fire Ants     | Fire Blight                  | Brown Patch    |
| Fleas         | Fungal Leaf Spot             | Take All Patch |

# Grow Green Program



[www.ci.austin.tx.us/growgreen/downloads/products.pdf](http://www.ci.austin.tx.us/growgreen/downloads/products.pdf)



# Grow Green Program

## *product toxicity comparisons*

Evaluation of active ingredients only; does not include toxicity information on inert or "other" ingredients.

### Toxicity/Threat:

☐ low   
 ☐ moderate   
 ☐ high   
 ☒ highest   
 NA not applicable  
 ? unknown toxicity   
 ☠ banned by EPA   
 🌍 earth-wise

### Hazards:



| note | Product Name                          | active ingredient(s) / concentrations | human toxicity        |                       | aquatic life          | birds, bees, pets     | soil mobility                    | environmental persistence |
|------|---------------------------------------|---------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------------|
|      |                                       |                                       | acute                 | chronic               |                       |                       |                                  |                           |
|      | Actinovate® SP                        | Streptomyces lydicus 0.037%           | <input type="radio"/> | ?                     | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/>     |
|      | Amdro® Fire Ant Bait                  | Hydramethylnon 0.73%                  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>     |
|      | Amdro® Fire Strike™ Fire Ant Bait     | Hydramethylnon 0.036%<br>methoprene   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>     |
| 🌍    | American Brand® Thuricide Concentrate | B.t. kurstaki                         | <input type="radio"/> | ?                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>            | <input type="radio"/>     |

[www.ci.austin.tx.us/growgreen](http://www.ci.austin.tx.us/growgreen)

[www.ci.austin.tx.us/growgreen/downloads/products.pdf](http://www.ci.austin.tx.us/growgreen/downloads/products.pdf)

# Cultural controls



- Sanitation / Quarantine
- Pest-proof design of buildings (Exclusion)
  - Followed by Inspection & Maintenance
- Proper plant selection: host plant resistance
- Good horticultural practices

# Industry Response





# Natria by Bayer

Fits your life.™ 

Get ready for the newest inspiration from Bayer Advanced.™

Now gardeners have a full range of new alternative options. Introducing Natria™ — the non-synthetic<sup>1</sup> choice that effectively protects the home, lawn, and garden against listed pests, weeds, and diseases.

<sup>1</sup>Active ingredients



Multi-Insect Control

[Product Details](#) ▶



Insecticidal Soap

[Product Details](#) ▶



Disease Control

[Product Details](#) ▶



Insect, Disease & Mite Control

[Product Details](#) ▶



Home Pest Control

[Product Details](#) ▶



Grass & Weed Killer

[Product Details](#) ▶



Snail & Slug Killer Bait

[Product Details](#) ▶





The  
**GreenBuffalo**



*Natural solutions for your yard, your health, your home*

## Indoor Pest Control with Dr. Ben's EVICTOR

### HOW TO USE DR. BEN'S EVICTOR

The following data will instruct you on how best to use your purchase of **Dr. Ben's Evictor** solution for control of Fleas, Ticks, Mites, Lice, Bed Bugs, Chiggers, Silverfish, Roaches, Ants, Carpet Beetles, Springtails, Scorpions, Spiders, Mosquitoes, Flies and a array of other non beneficial insects. **Dr. Ben's Evictor** can be used on any surface area including skin, hair, cloth or leather furniture, wood, hardwood floors, tile and linoleum floors, clothing, mattress and box springs, carpet, kitchen counters and inside cupboards and pantry areas. It also makes a excellent furniture polish. **Dr. Ben's Evictor** is formulated with food grade EPA and FDA approved compounds that are safe to use on anything except plant life. It will not stain or attract dirt. Feel free to use it liberally as a liquid, mist, or with a NON THERMAL ULV fogger, depending on your objective. Rest assured, you can not use to much solution. The following will suggest a proper protocol for application of **Dr. Ben's Evictor** for one or more of the animal health or insect control endeavors you may be contemplating. **Dr. Ben's Evictor** is a READY TO USE solution and cannot be diluted.



**Shop NOW!**

The  
**GreenBuffalo**



*Natural solutions for your yard, your health, your home*

## Indoor Pest Control with Dr. Ben's EVICTOR

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**Shop NOW!**

Cedar Oil



# Human Creativity: Reuse/Recycle



# Integrated Pest Management Principles

IPM





# “IPM” originally in Agriculture

Somewhat Unnatural  
Environment!



Economic Thresholds

# IPM

**Integrated Pest Management**



# IPM Principles in the Urban Environment

Very Unnatural  
Environment!

Aesthetic  
Thresholds



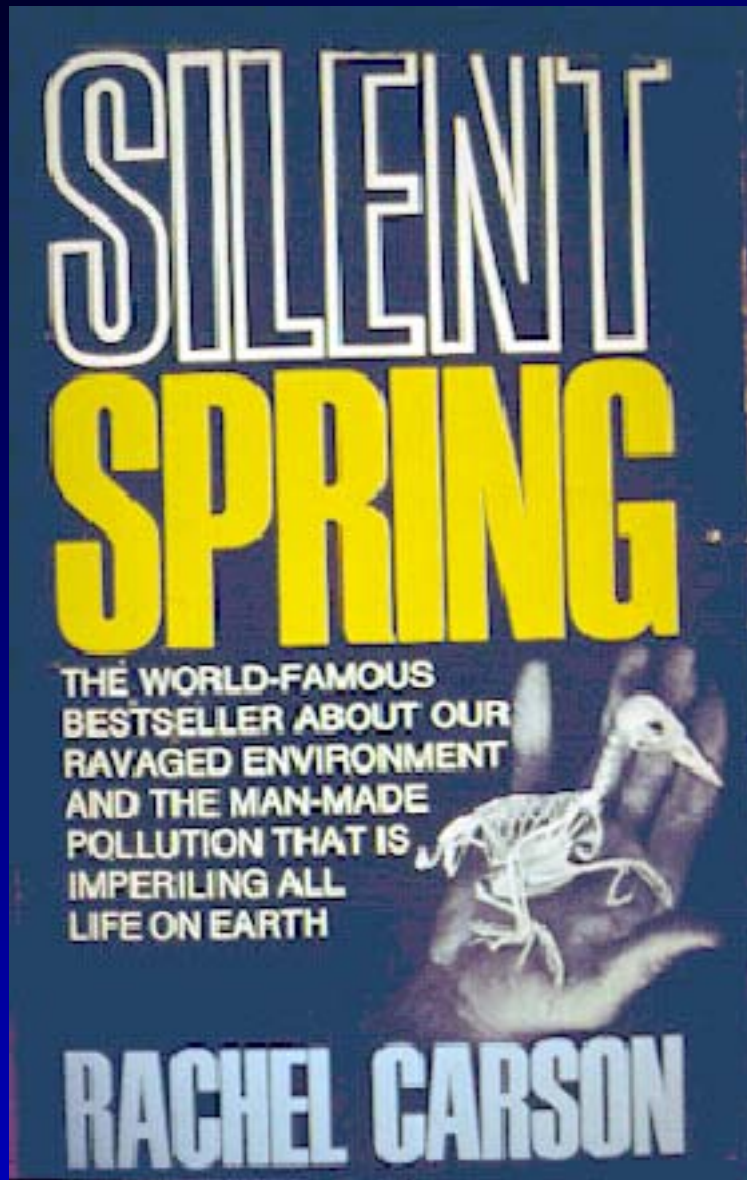
Starting in the mid-1900's, the easy answer to insect pest control was the use of broad-spectrum insecticides.

Chlorinated hydrocarbon insecticides became widely used especially DDT





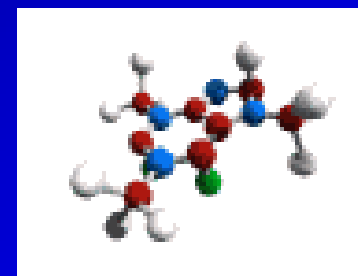
p,p'-DDT; 1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane;  
Dichlorodiphenyl-trichloroethane



" What we have to face is not an occasional dose of poison which has accidentally got into some article of food, but a persistent and continuous poisoning of the whole human environment."  
Rachel Carson (1963)



# Safer Chemistries Have Been Created, and the Principles of Integrated Pest Management Developed



Identify problem

Monitoring

Thresholds

Multiple control methods

Evaluate your plan

# Integrated Pest Management

- System or strategy
- Utilizes all methods of pest suppression
- Compatible
- Maintain pests below economically damaging level
  - Environmentally sound
  - Economically sound (2X or 3X dosage)





# Tenets of Integrated Pest Management

- Orientation to pest population
- Supplement natural control
- Alleviate problem for long term
- Lower mean level of abundance
- Management, not necessarily  
elimination

# Scientific Steps of an Integrated Pest Management Strategy

- Accurate Identification of Pest Problem(s) and Survey of Pest Situation
- Develop Appropriate Treatment
- Implement Program
- Evaluate Treatment Program
- Modify and Re-Implement





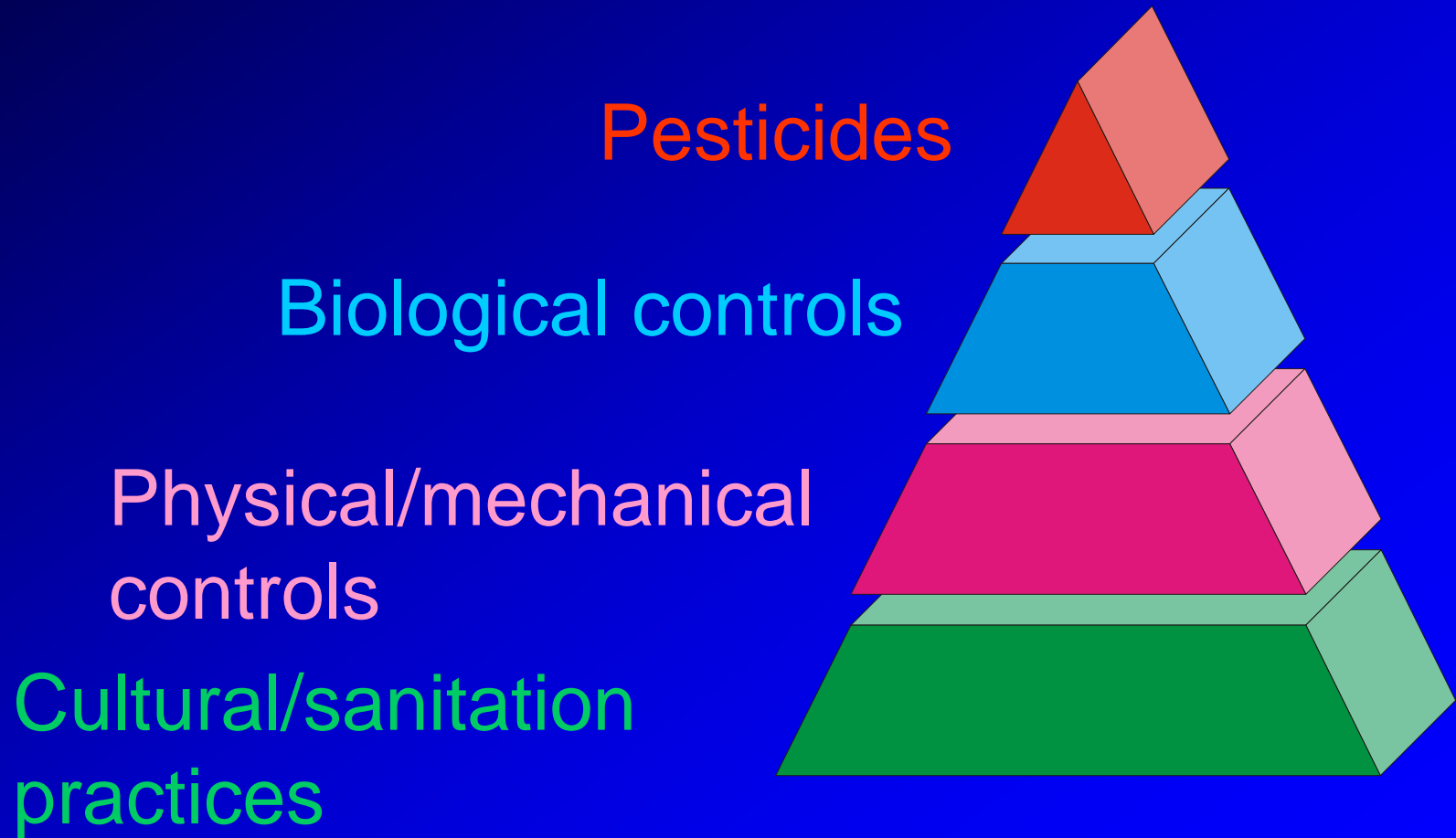
Friend or Foe?



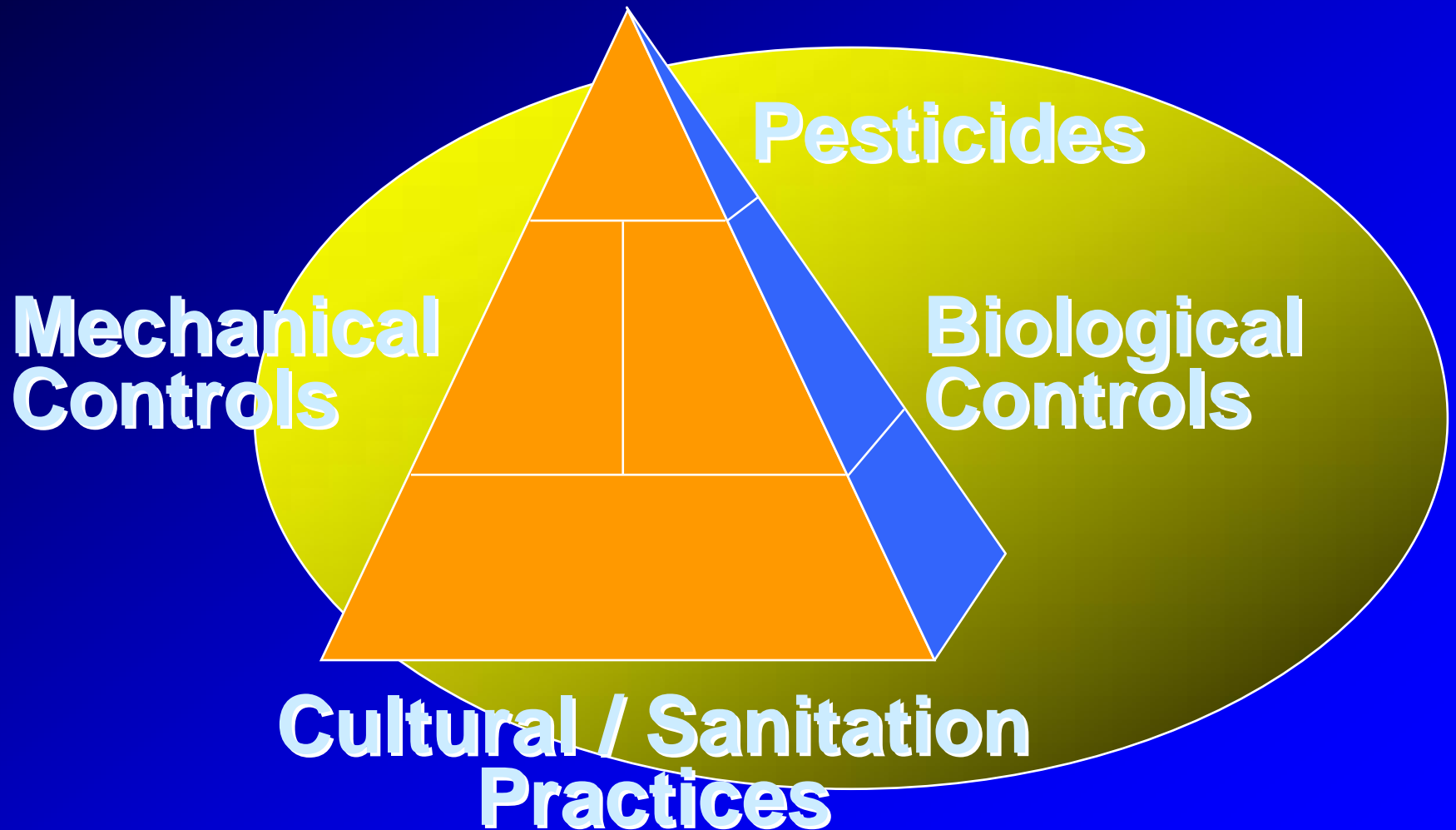
Friend or Foe?



# IPM Tactics



# Tactics used in IPM



# Basic Tactics in Urban IPM

- Source & Population Reduction
- Sanitation
- Exclusion









# S.T.A.R. Program

- Sustainable Terrain Advanced Resources
  - For Professional Landscape and Pest Management Industry
- Initially in Harris County...ultimately offered throughout Texas
- AgriLife Extension Service
- Greater Houston Pest Control Assn. (TPCA)
- Harris County Landscape Professionals

# EcoSmart.gov



- ▼ Home
- ▶ ecoSmart-Energy
- ▶ ecoSmart-Water
- ▶ ecoSmart-Fire
- ▶ Contact Us
- ▶ Partners

## what is ecoSmart?

ecoSmart is a Web-based software program designed to evaluate the economic trade-offs between different landscape practices on residential parcels. The program estimates the impacts of strategic tree placement, rainfall management, and fire prevention practices. Users work in a computer-simulation environment to test various landscape and hydrologic alternatives to arrive at environmentally and economically sound solutions.



### ecoSmart-ENERGY

- add trees, remove trees, grow trees, or move trees to new locations
- estimate how different kinds of trees in different locations influence energy use for heating and cooling ... [more...](#)



### ecoSmart-WATER

- add cisterns, swales, depressions, dry wells, or low water-use trees.
- evaluate the effect of these solutions
- see how different irrigation schedules influence water use ... [more...](#)



### ecoSmart-FIRE

- remove trees and shrubs, change species, or reduce ladder fuels by raising tree crowns
- simulate an actual fire to demonstrate how landscaping decisions affect fire safety ... [more...](#)



## Did you know your home landscape can save you money??

Our new software is designed to help you plan your home's landscape to save you dollars.

- Plant shade trees to reduce your air conditioning bill.
- Install water conservation practices to reduce your water bill.
- Place trees and shrubs properly to make your home safer in the event of a fire.

# EcoSmart.gov

With support from:



Pacific Southwest  
Research Station



USDA Forest Service  
State and Private Forestry

**See the results immediately!** The bars at the left update automatically as you change the landscape of your house, showing your fire hazard, energy usage, and water usage.



# EcoSmart.gov

developed by...



**Center for Urban  
Forest Research**

Pacific Southwest  
Research Station,

USDA Forest Service

1 Shields Avenue, Suite 1103

Davis, CA 95616-8587

(530) 752-7636

Fax (530) 752-6634

<http://cufr.ucdavis.edu/>



# Specific Target Insects

- White Grubs in Turf



# Specific Target Insects

- White Grubs in Turf
- Treatment: What (Soil Mobility-Systemic) & When?
  - Imidacloprid (Merit™ or Marathon™)-Bayer
  - Thiamethoxam (Meridian™ or Flagship™)-Syngenta
  - Dinotefuran (Safari™)-Spectracide Tree & Shrub
  - Chlorantraniliprole (Acelepryn™)-DuPont
  - Treatment at onset of mating; younger grubs more vulnerable
  - Treatment more difficult when grubs are larger and deeper in soil: later in the year when infestation symptoms appear!

# Selective Toxicity

- Chlorantraniliprole (Acelepryn™)-DuPont
- Receptor sites in insect muscles
- Group 28 insecticide
- Low water solubility (1.0 ppm)
- Low application rate (0.1 lb ai/Acre)
- Classified as Reduced Risk by U.S. EPA \*\*
- For white grubs, billbugs, and bluegrass weevils (landscape pests)

# Acelepryn

| Active Ingredient  | By Weight |
|--|-----------|
| Chlorantraniliprole*   |           |
| 3-Bromo-N-[4-chloro-2-methyl-6-[(methylamino)carbonyl]phenyl]-1-(3-chloro-2-pyridinyl)-1H-pyrazole-5-carboxamide | 18.4%     |

|                          |       |
|--------------------------|-------|
| <b>Inert Ingredients</b> | 81.6% |
|--------------------------|-------|

|              |        |
|--------------|--------|
| <b>TOTAL</b> | 100.0% |
|--------------|--------|

ACELEPRYN™ insecticide is a suspension concentrate. This product contains 1.67 pounds of active ingredient per gallon.

\*Chlorantraniliprole belongs to the anthranilic diamide chemical class.

EPA Reg. No. 352-731 EPA Establishment No. \_\_\_\_\_

**Nonrefillable Container**

Net: \_\_\_\_\_

E.I. du Pont de Nemours and Company  
1007 Market Street  
Wilmington, Delaware 19898

## PRECAUTIONARY HAZARDS TO AND DOMESTIC

When used as directed this product is not a hazard to humans or domestic animals.

## PERSONAL PROTECTION

Applicators and other handlers must wear: Long-sleeved shirt and long pants. Shoes plus socks.

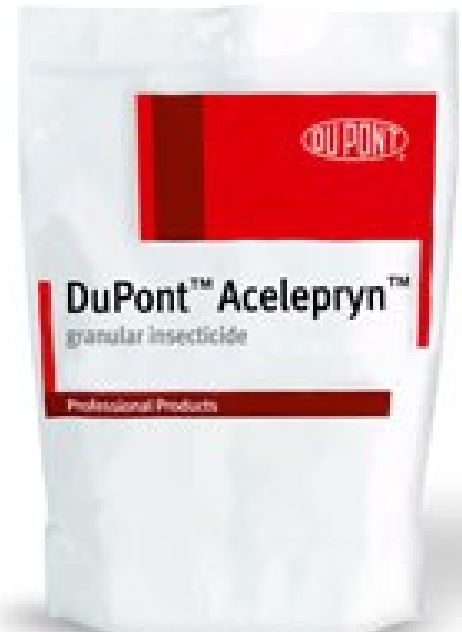
After the product has been diluted, follow the usual directions for use, shirt, pants, socks. Wash and clean Personal Protective Equipment (PPE) after each use. Follow the manufacturer's instructions for cleaning such instructions for washables and for nonwashables. Keep and wash PPE in hot water. Keep and wash PPE in hot water. Keep and wash PPE in hot water.

## USER SAFETY RECOMMENDATIONS

**USERS SHOULD:** Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

## ENVIRONMENTAL HAZARDS

This pesticide is toxic to aquatic invertebrates, oysters and shrimp. Do not apply directly to water. Drift and runoff may be hazardous to aquatic organisms in water adjacent to use sites.



[NOTE: NO SIGNAL WORD is required for this product]



*The miracles of science™*



# Acelepryn

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## TOXICOLOGICAL INFORMATION

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### Animal Data

Data based on similar product:

Dermal LD50: > 5000 mg/kg in rats

Oral LD50: > 5000 mg/kg in rats

Inhalation LC50: > 6.2 mg/L in rats

Based on data from a similar product, Acelepryn Granular is not a skin or eye irritant and is not a skin sensitizer in animals.

### CHLORANTRANILIPROLE

There were no adverse effects in subchronic feeding studies in rats, mice or dogs. There was a decreased body weight gain at high doses in a 28-day feeding study in mice and in a 28 day dermal study in rats.

# Low Impact Termiticide

- Acelepryn --- Altriset \*\* (A.I. = Calteryx)
- Anthranilic diamide class of chemistry
  - Originally from bark of *Ryania* trees & shrubs



- Affects the ryanodine receptors in insect muscle fiber...depletion of calcium ions, disrupts muscle contraction

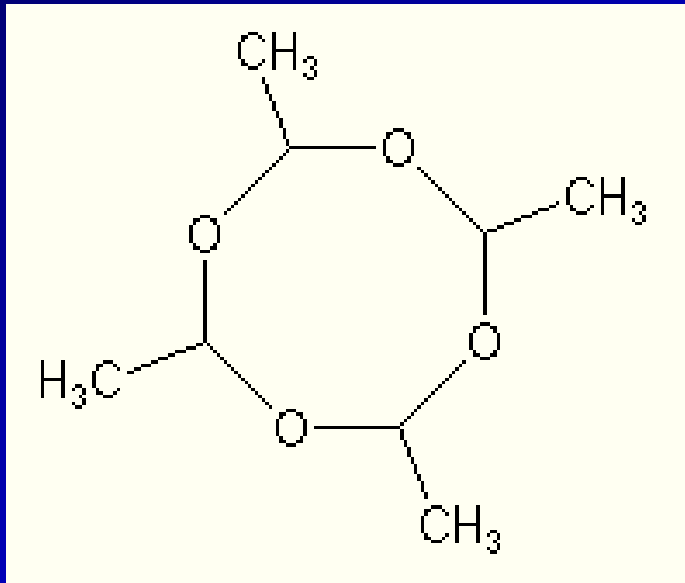
# Non-Insect Pests

- Slugs & Snails



# Non-Insect Pests

- Slugs & Snails

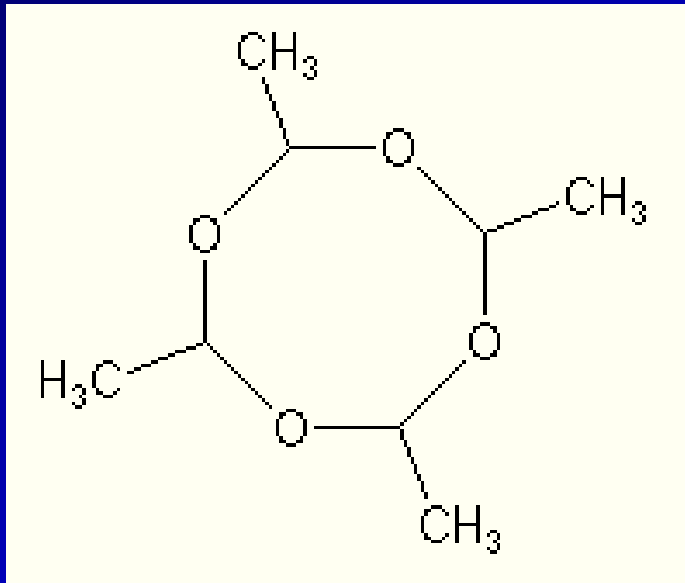


Metaldehyde or  
Metaldehyde/Carbaryl



# Non-Insect Pests

- Slugs & Snails



Metaldehyde or  
Metaldehyde/Carbaryl



Iron Phosphate



Sluggo Plus: Iron Phosphate + Spinosad



## The Latest Broadcast on Fire Ant Control Products

Dr. Paul R Nester, Extension Program Specialist - IPM - Houston Metro Area

For more information see our web site, <http://fireant.tamu.edu> - Updated 7/12/2010

### Fire Ant Baits

(broadcast applications unless specified as single mound only)

**Agricultural Lands** (*grazed, hayed, cropped, orchards, gardens, etc.*). Read label thoroughly for specific uses.

Amdro Pro (0.73% hydramethylnon) - May be applied to grass forage (pasture and rangeland) for the control of fire ants in some southern states. Do not cut and bale hay from pastures and rangeland until 7 days after the bait application is made. Full effect of the product on the ants takes about 3-6 weeks.

Clinch (0.011% abamectin) - Speed of control similar to Amdro Pro, but label is more restrictive than Amdro Pro. Controls fire ants in citrus, almonds, walnuts, potatoes, around barns and equipment, and around chicken houses. Do not use in pastures or rangeland grazed by cattle, sheep, or other domestic animals (including horses), or around chicken houses where birds are allowed outdoor range.

Esteem (0.5% pyriproxyfen) - Esteem can be used in hay pastures or with livestock used for food or feed production. Esteem may also be used in select vegetables, and tree or vine fruits, but refer to the label for specifics. Relatively slow, 1-3 months applied in spring, 3-6 months in fall.

Extinguish (0.5% methoprene) - Labeled for use almost anywhere. The active ingredient (methoprene) is very slow to work; usually 1-3 months if applied in the spring and, 3-6 months if applied in the fall. Full effect of the product varies with reinvasion pressure; one application per year is usually sufficient.

Extinguish + Amdro Pro Hopper Blend - mix 0.75 lb of each individually available product (50:50 hopper blend) applied at 1.5 lbs/acre total. Gives speed of control of Amdro Pro and the duration of control of Extinguish at no extra cost. Similar restrictions for grass forage as Amdro Pro. For a discussion on hopper blends please see the Texas AgriLife Extension Service Publication B-6099, Broadcast Baits for Fire Ant Control (<http://agrilifebookstore.org>)

Extinguish Plus (0.25% s-methoprene + 0.36% hydramethylnon) - the same ingredients as used in the hopper blend of Amdro Pro + Extinguish but sold as a single product. Extinguish Plus may be applied to grass forage (pastures and rangeland) for the control of fire ants in some southern states. Do not cut and bale hay from pastures and rangeland until 7 days after the bait application is made. Label more limited than Extinguish.



