

Pinellas County Landscape BMP Certification Class





Publications

Resources to help you educate yourself and your customers!

Materials in print and online



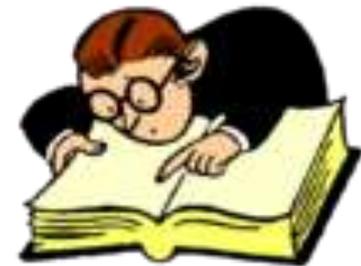
Pinellas County Extension
12175 125th Street North
Largo, FL 33774
727 582-2100

UNIVERSITY OF
FLORIDA
IFAS EXTENSION

Pruning Cape Myrtles

By Pam Brown, Urban Horticulture Extension Agent

Cape myrtle (*Lagerstroemia indica*) is a small tree that prefers hot, sunny climates. It is well adapted to our climate here in Pinellas County. Once well established, these trees are extremely drought tolerant and have low fertilizer requirements. Grapes grace us with lovely blooms in the summer. And, if pruned or trained properly, the bare trunk and branches are very sculptural after losing leaves in early winter.



Vehicle Decals

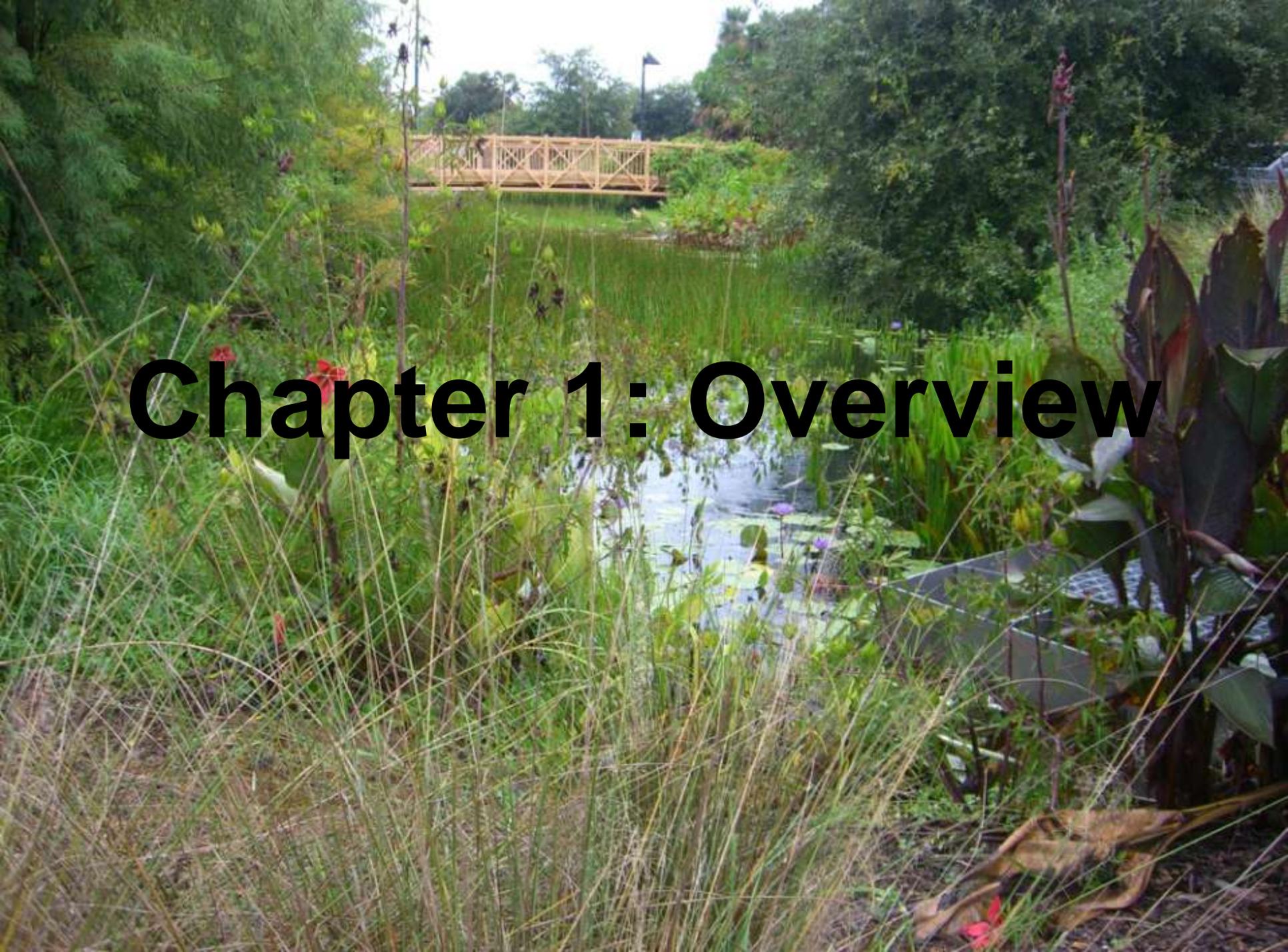
Each service vehicle must display one Pinellas County decal.



Wallet Cards

Each employee must carry their wallet certification card while working.



A lush garden pond with a wooden bridge in the background and various plants in the foreground. The pond is surrounded by dense greenery, including tall grasses, purple flowers, and large dark leaves. The bridge is made of light-colored wood and has a railing. The scene is set in a park-like environment with trees and a clear sky in the background.

Chapter 1: Overview

Chapter 1 Objectives

- Learn why water quality is important
- Understand the terms
 - Non-point source pollution
 - Stormwater runoff
 - Impervious surface
 - Diverse sources
- Learn Florida-Friendly Landscaping practices

What's a BMP?

a) BMP means

Best Management Practice

b) A BMP is a method,
practice or
technique believed
to be most effective
at achieving a
specific result.



Why Are We Here?

To Protect Water Quality

Objectives (after the class you should be able to)

- Name 3 reasons water quality matters**
- Define the term 'impervious surface'**
- Define 'non-point source pollution'**
- Explain what 'diverse sources' means**

What are we protecting when we protect water quality?



Our beaches
Fishing*
Tourist industry
Seafood
Snowbirds
Our water
& our



What are the primary sources of water pollution?

- **Point Sources**
 - When you can **point at** a specific source (industrial, power plants...)
- **Atmospheric Deposition**
 - From sky (fumes=pollution goes ↑ rain brings it ↓)
- **Non-Point Sources**
 - When you **can't point** at the source, pollution comes from **diverse sources** (illegal dumping, stormwater runoff, soils-sediments)



Impervious Surfaces

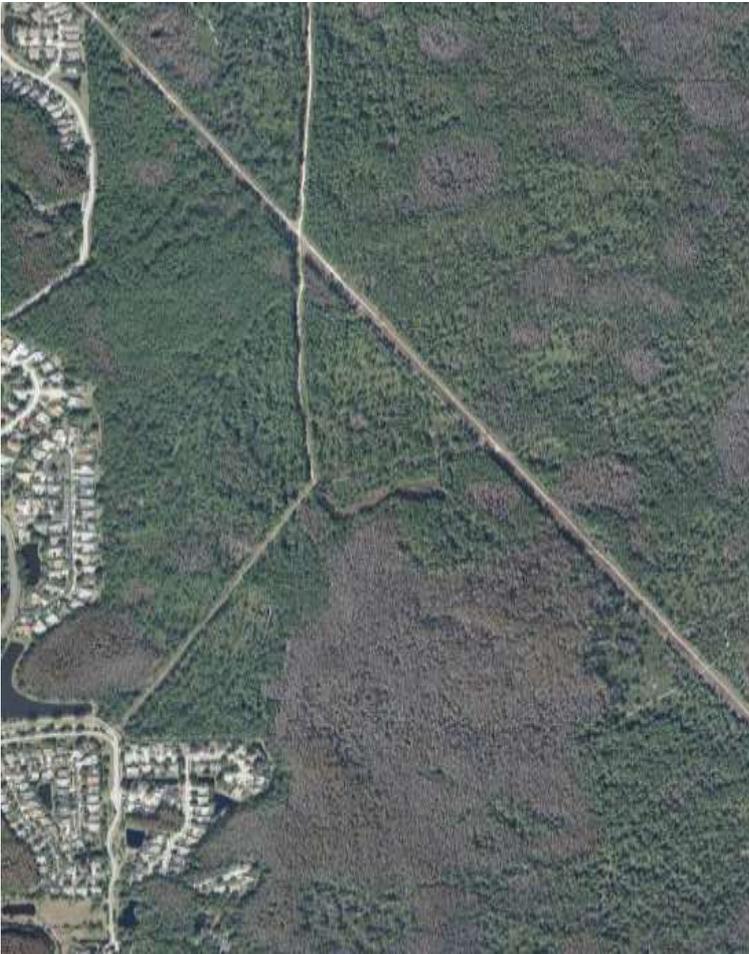
An impervious surface does not allow water to pass through it.

Roads, roofs, sidewalks and driveways are examples

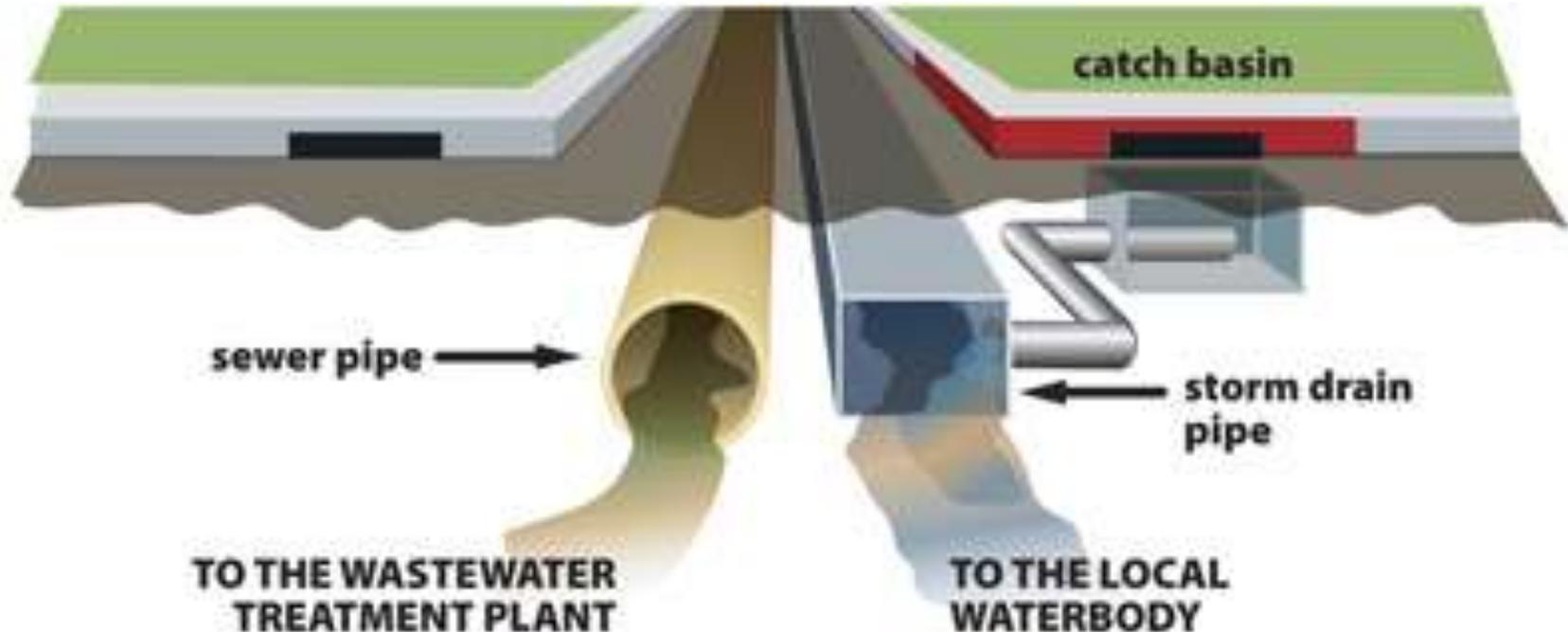


Pinellas County's Urban Growth

More development = More areas of
impervious surface = More pollution!!



Impervious surfaces lead to storm drains



Contents go to a wastewater treatment plant

Contents get dumped into a body of water such as a stream, river, lake, gulf or ocean

Only rain down the drain!

Handout



One storm drain

Thousands of storm drains



Source: time.com



Source: secure.health



Source:healthebay.org

Plastic isn't the only problem

- a) Nutrients – fertilizers, animal waste, etc
- b) **Organic debris** (grass clippings, lawn debris, leaves)
- c) Petroleum products, oil, grease, etc
- d) Soil and sediment from erosion
- e) Toxic chemicals, pesticides, etc



Pollution In Water Results In....

Increased aquatic plant and algal growth

Lower oxygen levels

Erosion

Harm to aquatic life

Impaired recreation





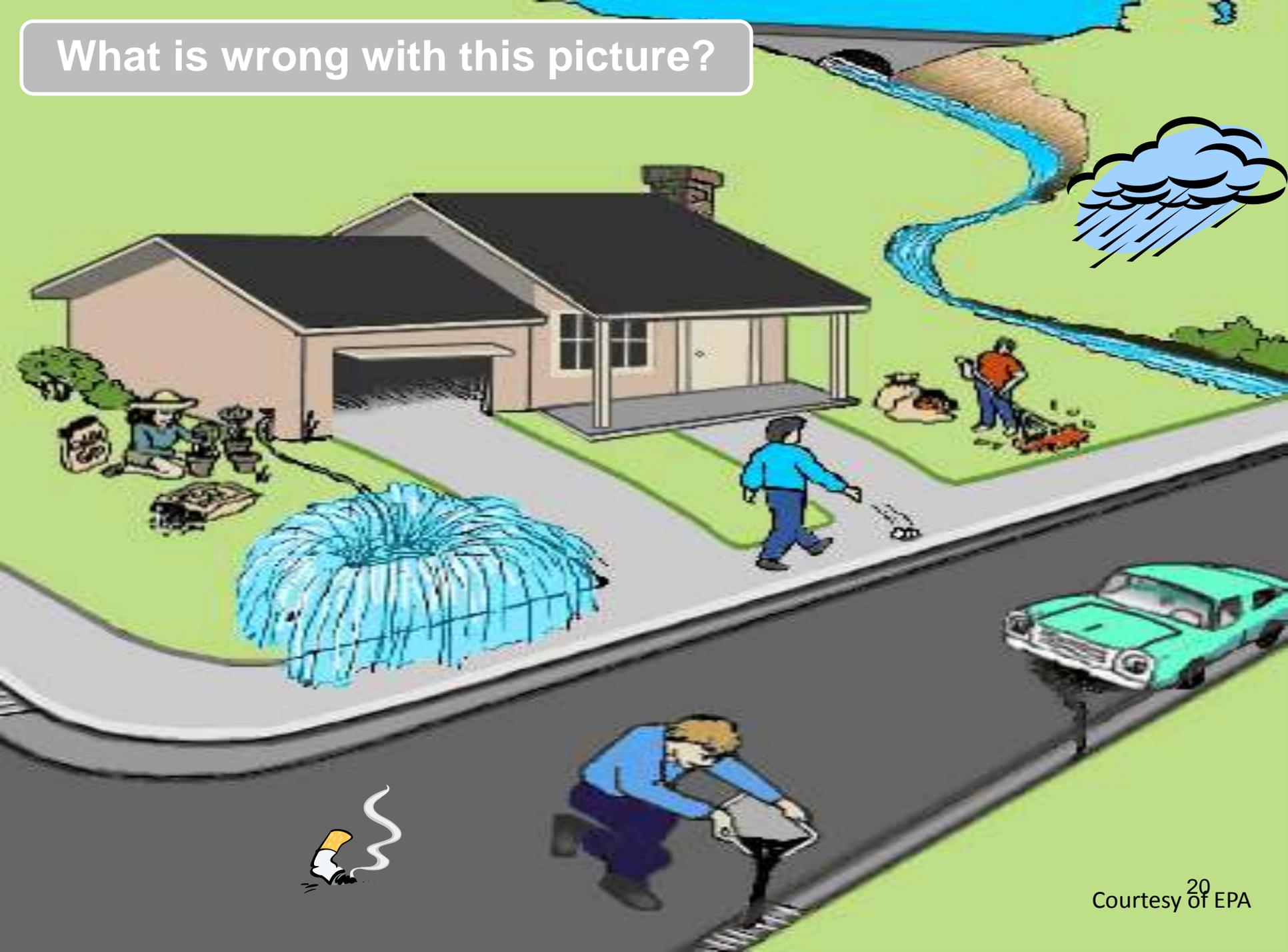
Here's What We've Learned

Most pollution...
plastic, oil, chemicals, pesticides, nutrients, fertilizer or organic debris
on an impervious surface ends up in a body of water

The result is:

Non-point source pollution

What is wrong with this picture?



What YOU do makes a difference!



The rest of this presentation is about how you can use Landscape Best Management Practices to reduce non-point source pollution

Legal Stuff

Handout

- a) If you apply any fertilizers in Pinellas County as part of your job you are required to attend the GIBMP class, obtain your State of Florida Fertilizer Applicator license, and obtain your Pinellas County vehicle decal.
- b) If you apply any pesticides as part of your job, including weed-n-feed products, Florida Statutes require you obtain a pesticide license.

For class listings:

www.pcehort.eventbrite.com

Legal Stuff

Handout

- c) Pinellas County ordinance # 10-06 requires that **all** landscape workers other than fertilizer applicators attend the Landscape BMP class and obtain the Pinellas County landscape decal.
- Certification is in your name so it stays with you if you change jobs
 - Certification is lifetime – no renewal needed.

For class listings:

www.landscapebmp.eventbrite.com

Florida Friendly Landscaping 9 Principles:

*Protect the
water*

Use IPM

Fertilize correctly

Use mulch

Waterwisely

**Provide for
wildlife**

Recycle

**Choose the right
plant for the site**

**Reduce stormwater
runoff**

Choose The Right Plant for the Site Conditions

Plants suited to the specific site conditions

- sun, shade,
- soil pH, drainage,
- salt tolerance

reduces the need for water, fertilizer, pesticides and pruning



Muhlenbergia capillaris
Photo by Betty Rieger



Right Plant, Right Place...

Happens when you closely match
the site conditions to
the needs of the plant

As a result, the plant will be healthier and happier. And **you will have FAR fewer problems and FAR less maintenance and use FAR less pesticides.**

Wrong Plant, Wrong Place



Plants Too Close to Foundation

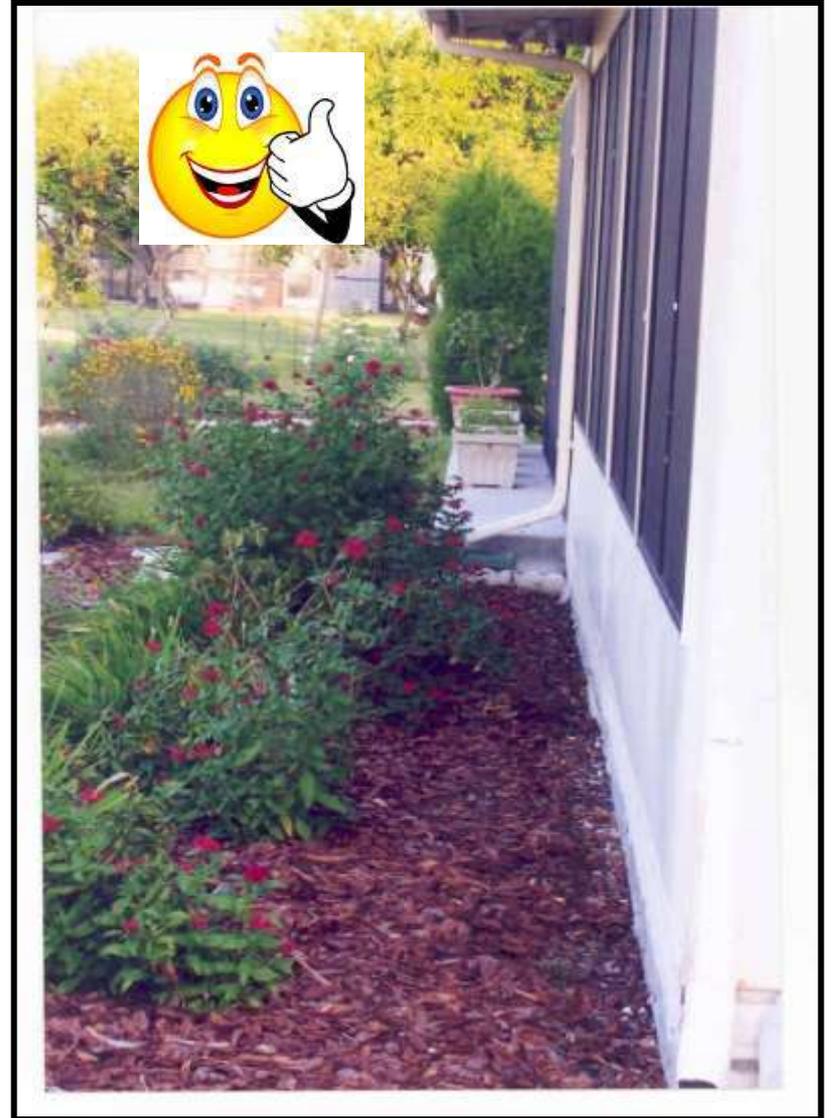
No water under eave



Need space between house and plants



Right Place



Integrated Pest Management (IPM)

IPM is a set of tactics and techniques to prevent and suppress pests. Pesticides are only one of the tools.



IPM Tools & Techniques

- 1) Reduce availability of food, water and shelter
- 2) Use plants resistant to pests
- 3) Biological control – use both natural enemies & biological products
- 4) **Cultural control – what most of this presentation is about**
- 5) Mechanical control
- 6) Sanitation
- 7) Chemical control – the last option

Chapter 2: Best Management Practices (BMPs)

Chapter 2 Objectives

- Define an impervious surface
- Understand Best Management Practices (BMPs)
- Learn how to prevent water pollution
- Learn the difference between structural and non-structural methods of pollution prevention
- Learn the incentives for using BMPs

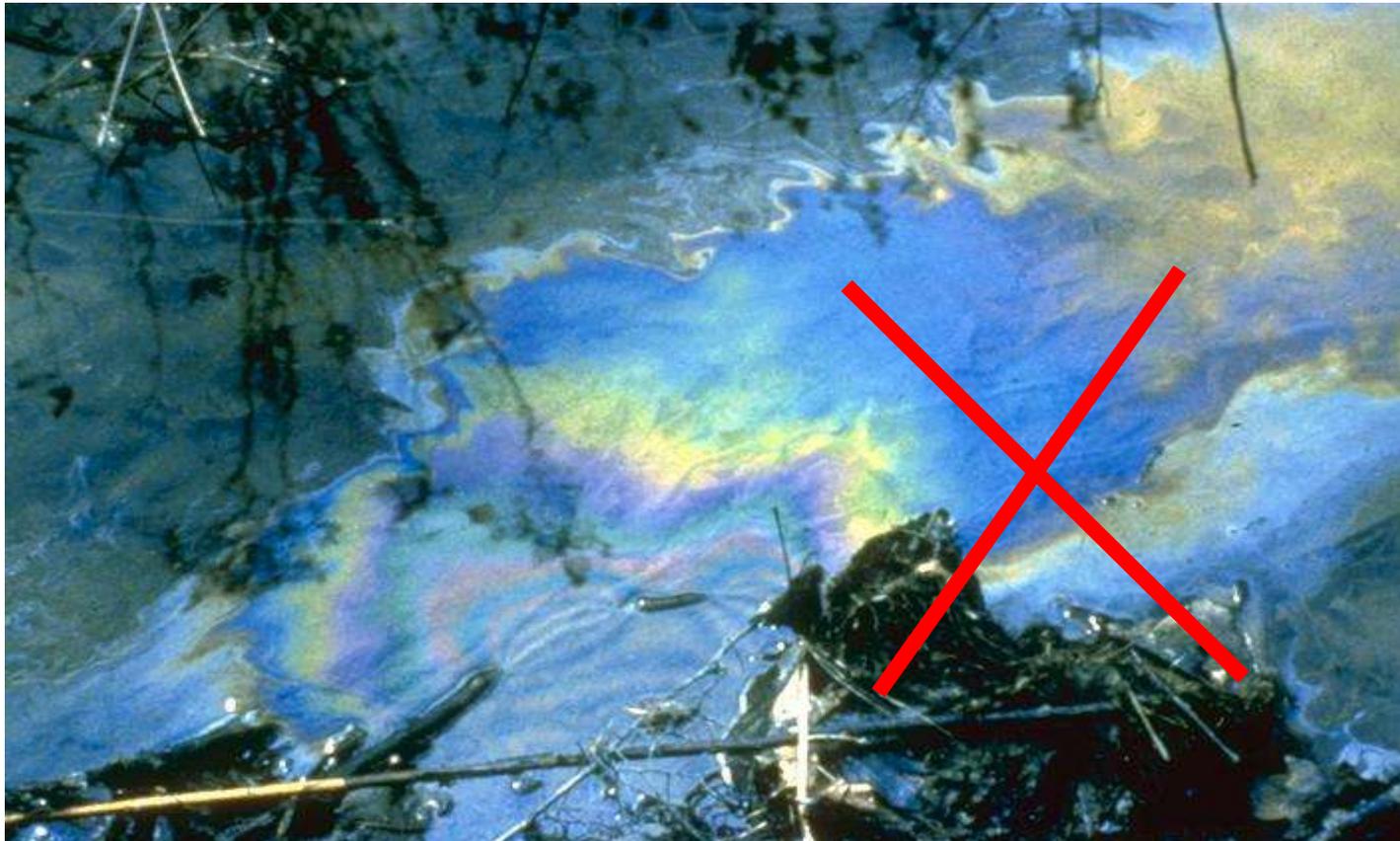
Best Management Practices (BMPs)

- Reduce non-point source (NPS) pollution and protect resources
- Methods are structural and non-structural
- Can reduce operational costs



The goal is to...

Reduce off-site transport of sediment, nutrients, and yard waste to lakes, ponds, and bays



Reduce stormwater runoff: Structural BMPs



Slows down velocity,
collects, holds, and
filters water runoff

Reduce stormwater runoff: Non-Structural BMPs

Things you can do to prevent
water pollution

Handout



Ways to Save Time and \$\$ - Incentives

- Edge before mowing
- Mulch-mowers: direct clippings INTO landscapes
- Utilize leaves and other materials as mulch
- Raising mower height = healthier grass = and reduced mowing frequency



Handout

A young boy with short dark hair, wearing a light grey t-shirt, is smiling and giving a thumbs up gesture. The background is a blurred green field.

**Work smarter,
not harder!**

Chapter 3: Lawn and Landscape Cultural Practices

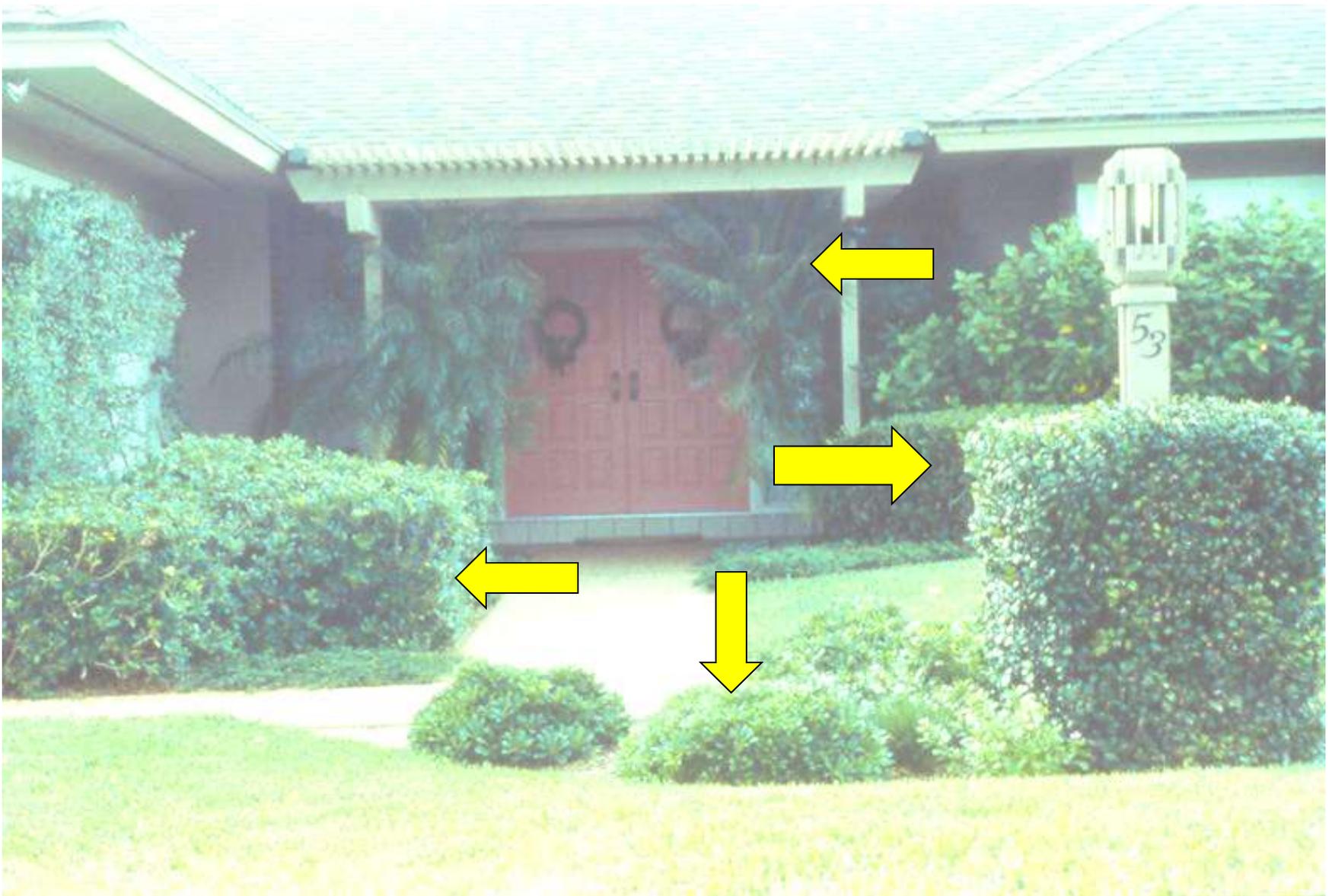
Chapter 3 Objectives

- Learn to properly install plants/trees
- Discover the benefits of mulch
- Learn proper mulch application
- Learn when & where turf is appropriate
- Learn proper maintenance practices for healthier landscapes

What are Landscape Cultural Practices?

- **Plant Selection** - Right plant for the right place
- **Mulching** - The benefits and proper use of mulch
- **Pruning** - Why, when, and how?
- **Mowing** – Proper height, frequency, equipment
- **Irrigation** – Efficient, uniform, accurate
- **Waste Disposal** – Responsible debris management

What problems do you see here?



Identify Planting Site

Advise clients of Florida-Friendly Landscaping options
Know when & where turf is appropriate



Identify Planting Site

Know when & where turf is appropriate



Advise clients of Florida-Friendly Landscaping options



Advise clients of Florida-Friendly Landscaping options

Steps for proper planting of trees and shrubs

Handout

Step 1: Dig shallow/wide hole



Source: jsnprc.blogspot.com

Steps for Proper Planting

Handout

Incorrect Depth
Too deep

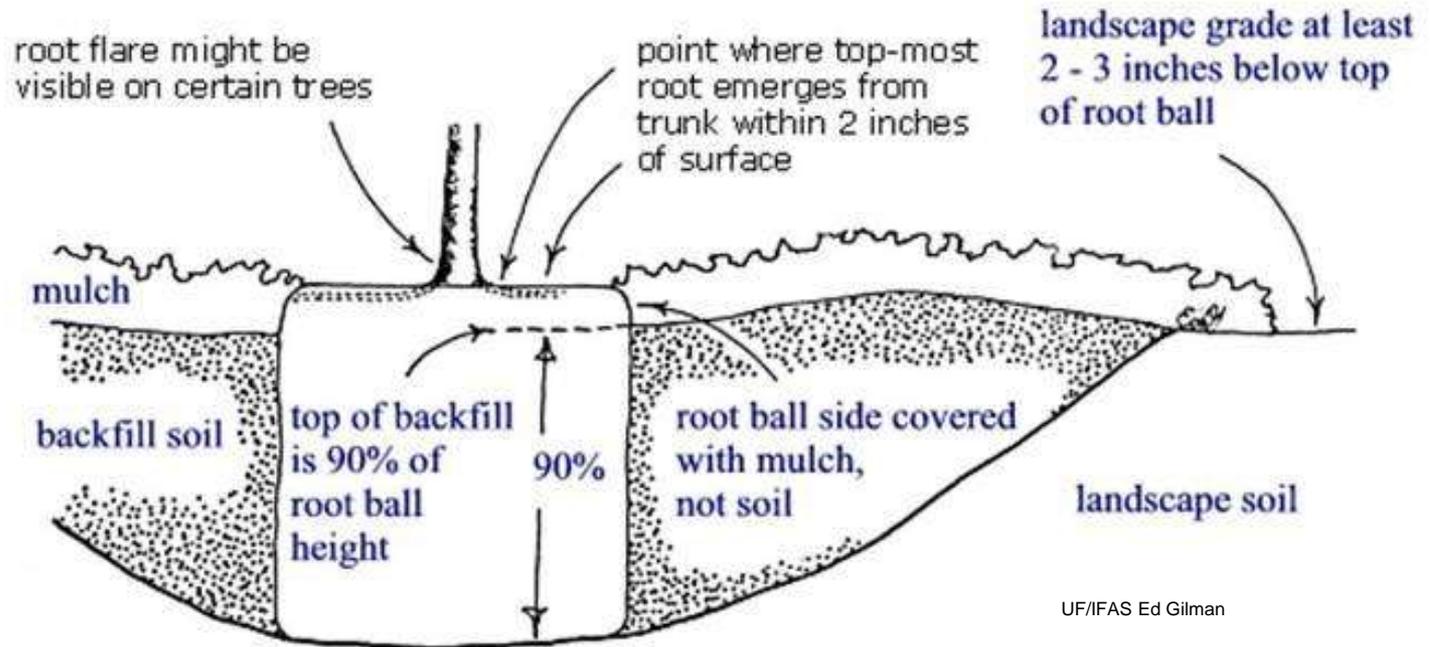


Correct Depth
2-3 inches above soil surface



Proper Planting Hole

The planting hole is at least 1.5 times the diameter of the root ball.



This provides loose soil for the expansion of new roots.

Step 2: Add a Berm



Not using a berm allows water to run off.



Keep water where it is needed by using a berm.

Step 3: Water in Backfill

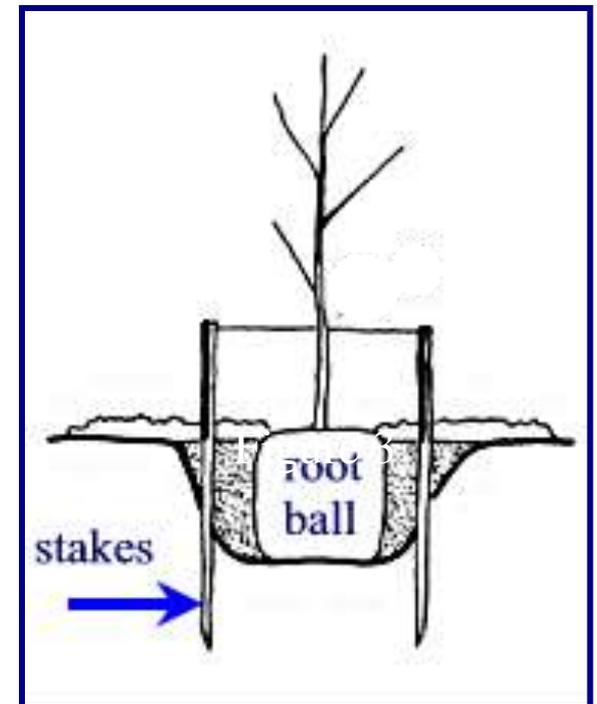
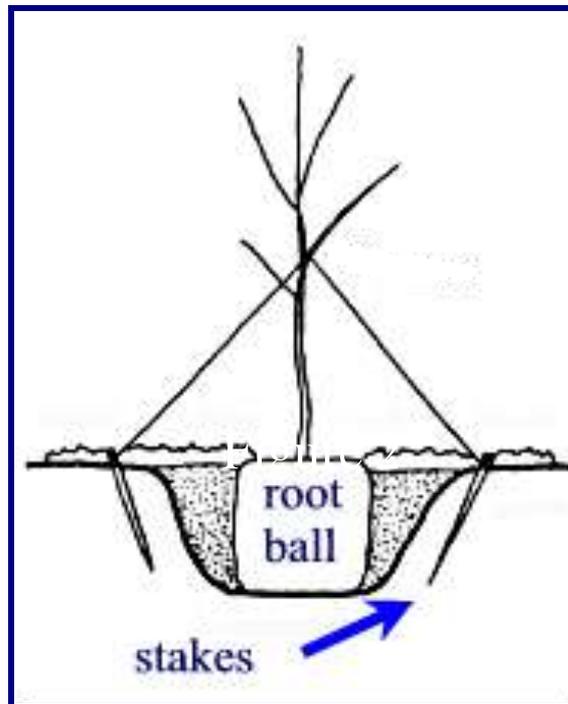
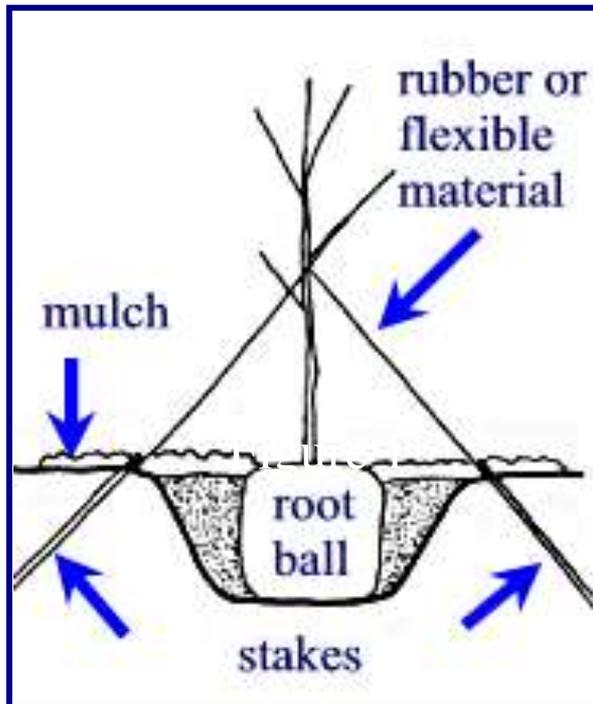
Remove air pockets



Step 4: Staking

Traditional staking methods

All these systems require removal within one year of planting.



Staking Palm Trees

Staking Palms

- Never drive nails into a palm
- Palms never heal
- Strap 2x4s to the trunk
- Nail supports to the 2x4s



The right way to stake a palm

Landscape Mulch



Any material applied to the soil surface to protect or improve the area covered

Organic

Inorganic



These were once living plants

Keep mulch away from base of plant



Improper Mulching

Mulching in a volcano-like manner can:

- Rot the trunk
- Cut off oxygen to roots
- Keep vital irrigation and rain water out
- Keep roots too wet in poorly drained soils
- Cause stem girdling roots on some trees



Benefits of Mulching

1. Reduces weeds



2. Slows water loss

3. Moderates soil temperature

Benefits of Mulching



4. Organic mulch can improve soil structure

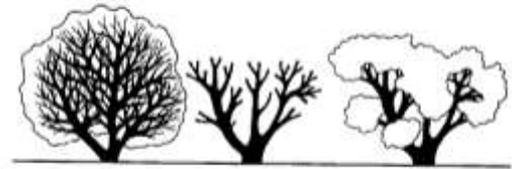


5. Provide protection from mechanical damage.

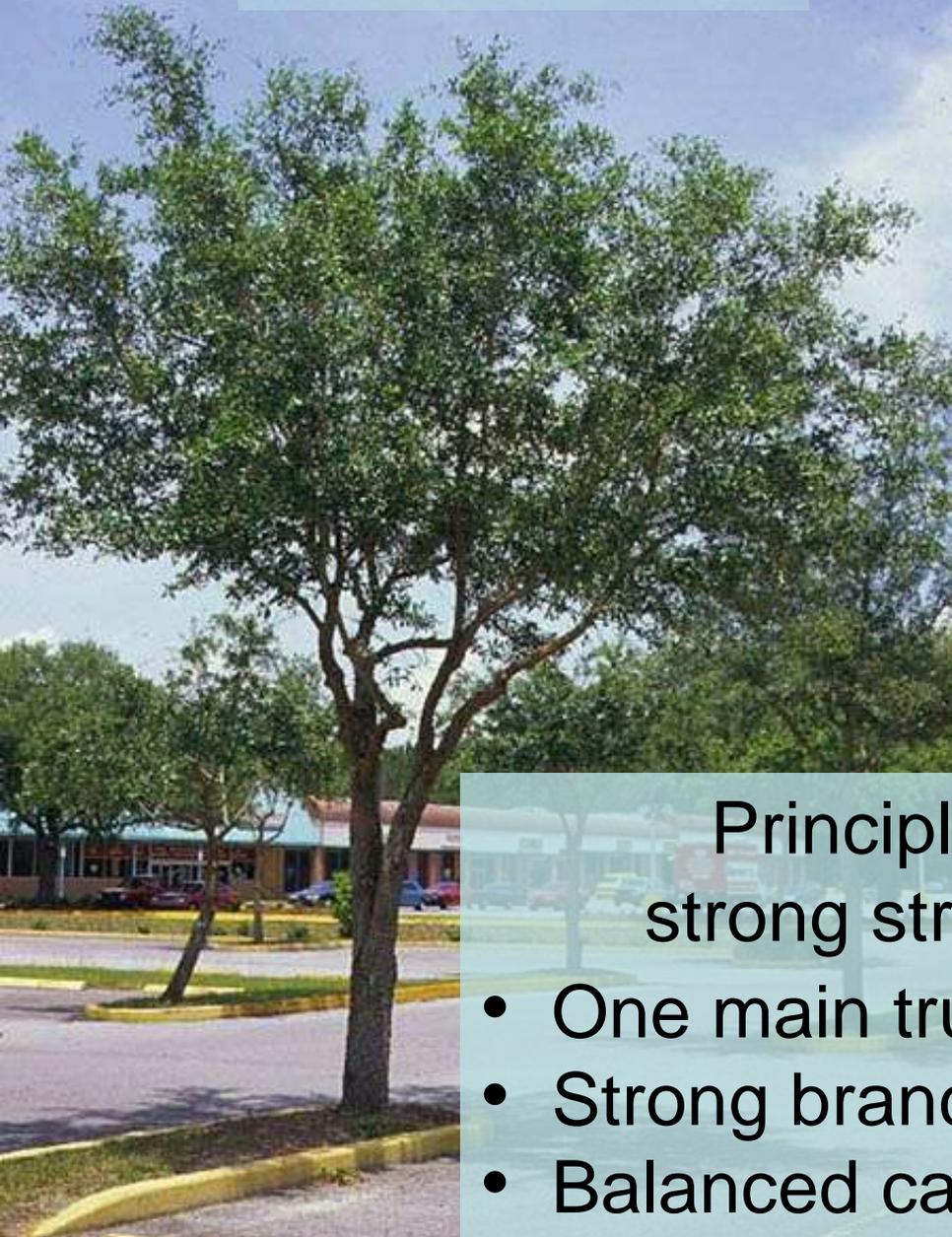
Chapter 4: Pruning

Chapter 4 Objectives

- Learn how to selectively remove shoots and branches
- Learn the reasons to prune
 - Control growth
 - Improve flowering
 - Improve plant health
- Know the importance of mangroves
- Know when an arborist is needed



Poor form



Good form



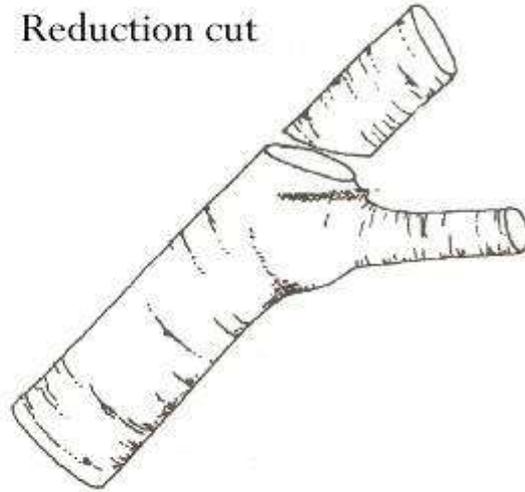
Principles of strong structure:

- One main trunk
- Strong branch unions
- Balanced canopy

Types of pruning cuts:

Handout

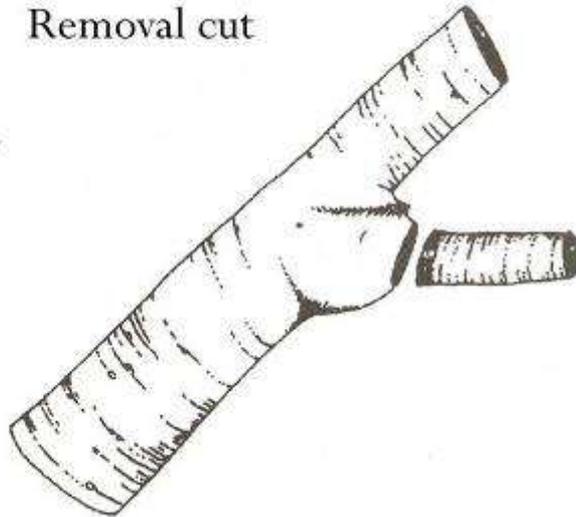
Reduction cut



Reduction cut

shortens the length of a stem by pruning back to a smaller limb.

Removal cut



Removal cut prunes a branch back to the trunk or parent branch.

Bad Practice – Don't Top Trees!!!



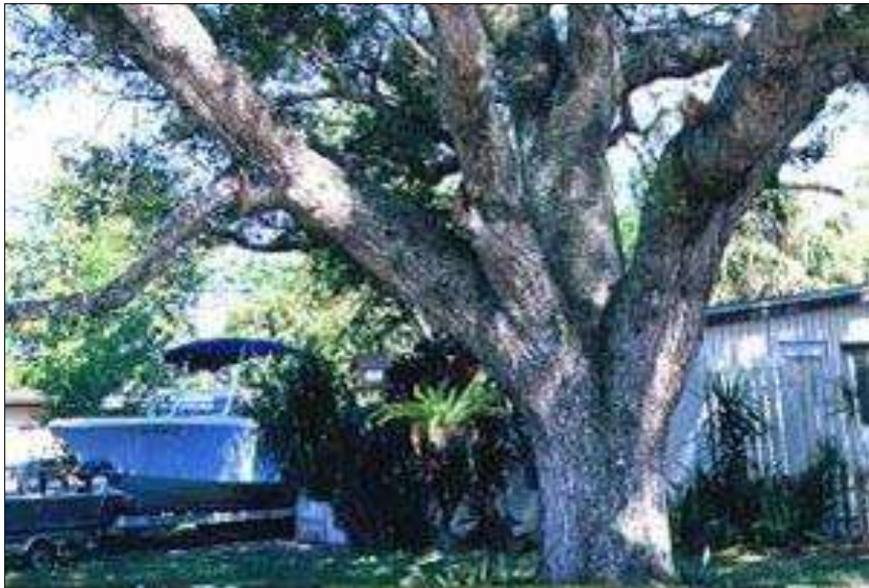
- It doesn't work
- It's expensive
- It's UG-LY!
- It's dangerous
- It's bad for the tree
- It makes you look bad



Hire an arborist!

Objective: Avoid trimming that may cause tree failure or property damage

- **Codominant stems:** stems of equal size originating from the same point on the tree
- **Included bark:** bark pinched between two stems, indicating a weak union



Hire a certified arborist!

Bad Practice – Lion-Tail



- Foliage concentrated at branch tips; inner branches removed.
- More risk of storm damage
- Hard to restore



Hire an arborist!!

Bad Practice – Crape Murder

Handout

Stop Crape Murder!!

Research says crapees pruned hard (topped):

- Blooms less
- Blooms later
- Ruins natural form
- Causes permanent damage and leads to death





A dead limb left on like this keeps the wound open and allows rot to enter the trunk

Branch bark ridge

Collar

Handout

Collar: swollen area at the base of the branch where it joins the trunk. This tissue is rich in energy reserves and chemicals that hinder the spread of decay. Good pruning cuts avoid cutting into the collar.

No / yes

A Proper Cut





Flush cuts keep wounds open, always cut on the outside of the branch collar.



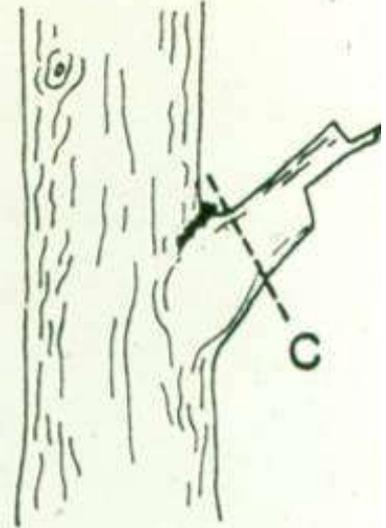
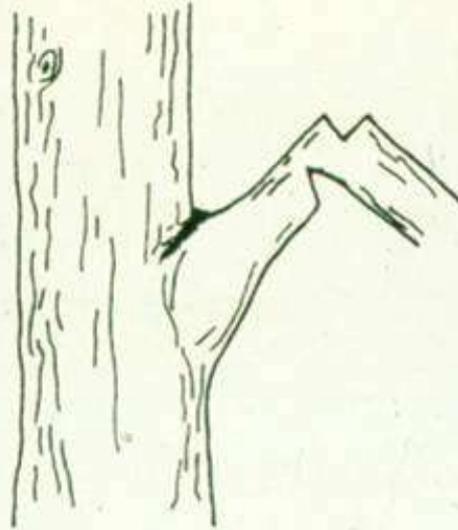
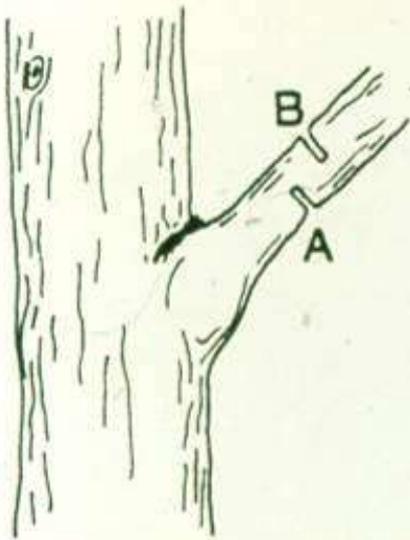
Improper pruning leads
to bark ripping



3-cut method to prevent bark ripping



Handout



Pruning Palms

Yellow fronds on palms are a symptom of a nutrient deficiency. Removing them usually makes the problem worse and limits diagnosis.



Over pruned!



Over grooming can kill palm trees

Pencil necking, caused by over pruning, will increase the chance that it will break in a storm, and will eventually lead to death of the palm.

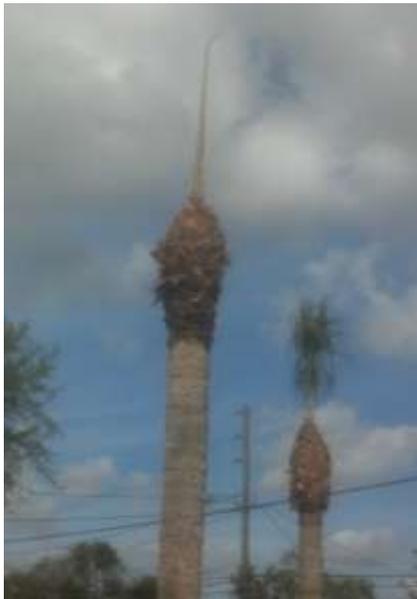
The “hurricane cut” may actually **reduce** the protection for the palm.



Do not hurricane cut palms!



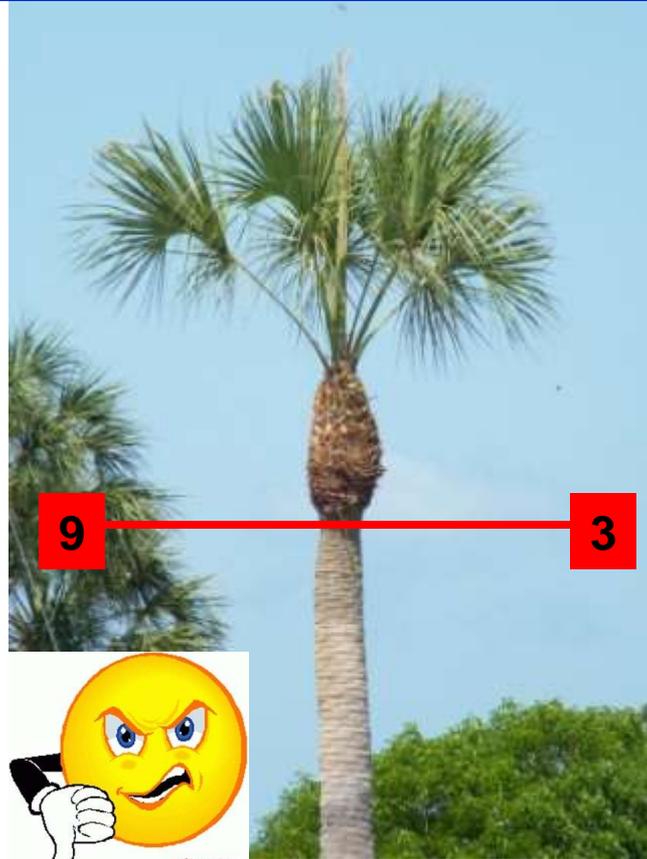
The fronds protect the core of the tree. If the core is damaged the tree dies.



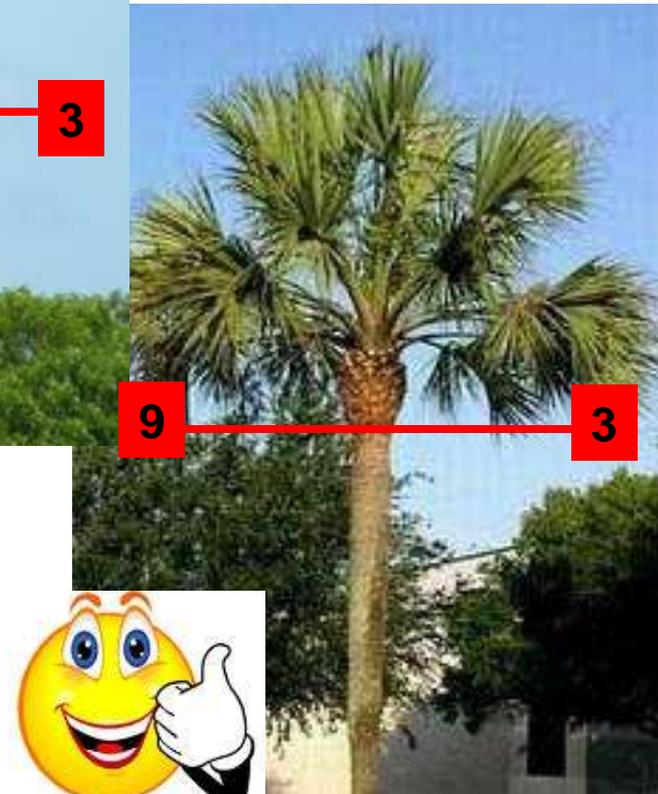
Hurricane cutting is illegal in Broward County because it is so harmful to palm trees.

Pruning Palms

- Don't prune palms needlessly
- *Never cut off green fronds.*
- *Never trim palms above 9 to 3.*
- Pruning reduces the palms ability to produce food for itself.

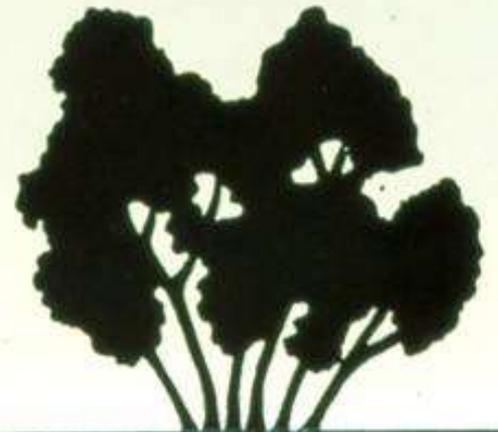
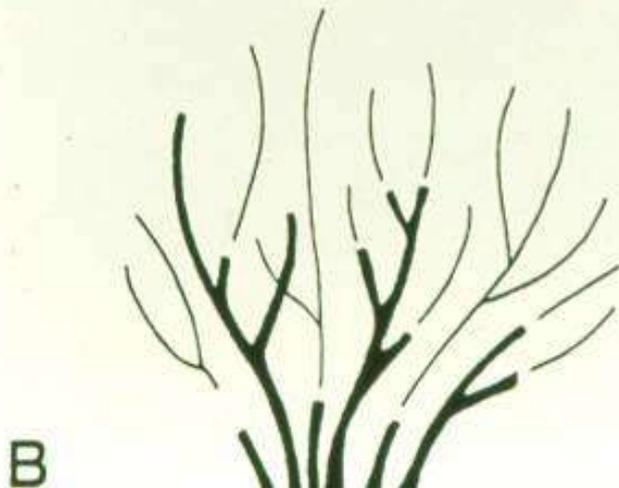
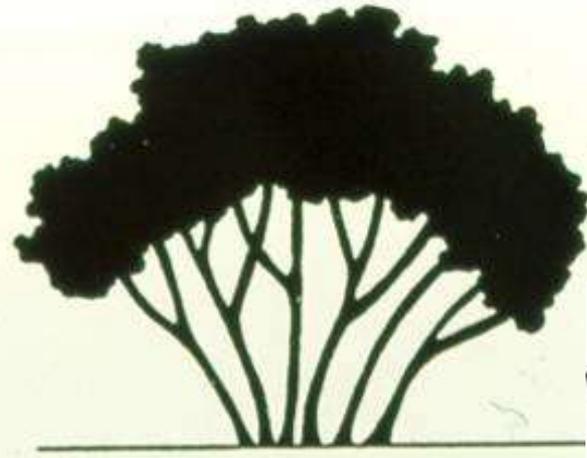
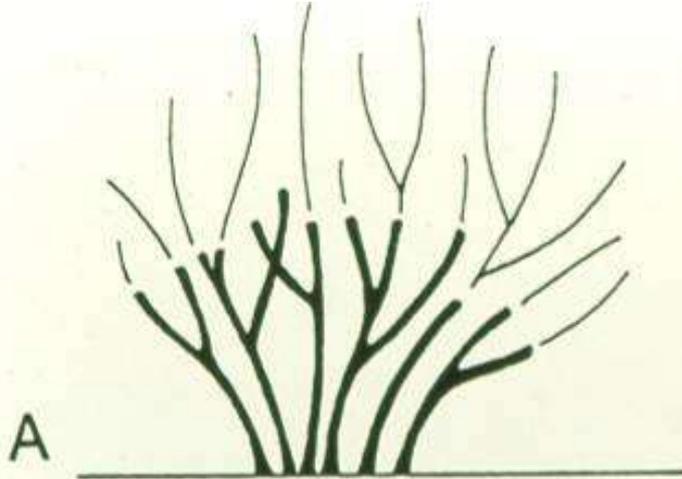


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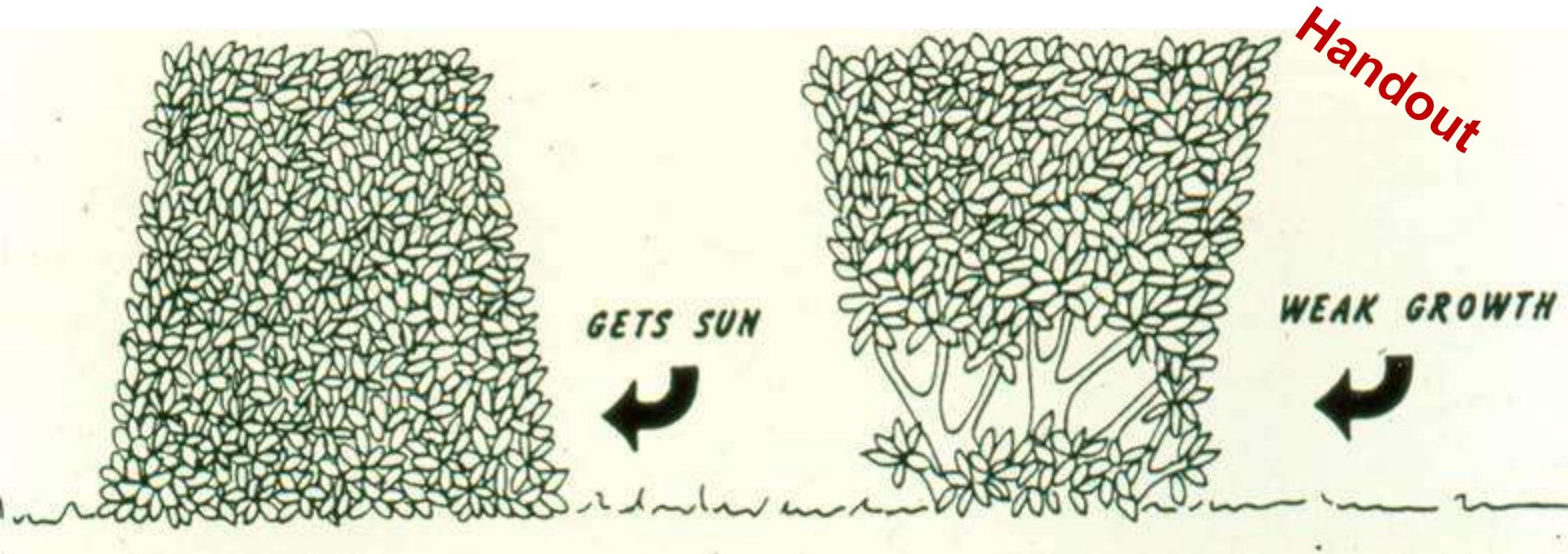


Pruning Shrubs

Handout



Always prune wider at the base!



Pruning Debris Management

- Leaves and branches contain nutrients which pollute water
- Rake up pruning clippings
- Never leave them in the street
- Never allow them into stormdrains



Pruning Debris Management

Compost or properly dispose of clippings

Fines for leaving yard waste on impervious surface!



Source: junkremovalhauling.com



Source: happyearth.com



Why Mangroves Are Important

Mangroves
protect
shorelines
from storm
damage and
erosion



Why Mangroves Are Important

Mangroves provide breeding, nursery and feeding areas for a wide variety of life, including endangered and threatened species.



Mangroves are Protected

Handout

- There are restrictions!!!
- Mangroves taller than 10 feet require a professional mangrove trimmer
- Dead mangroves are also protected
- Pick up a Mangrove brochure!
- Call 453-3385 for info!

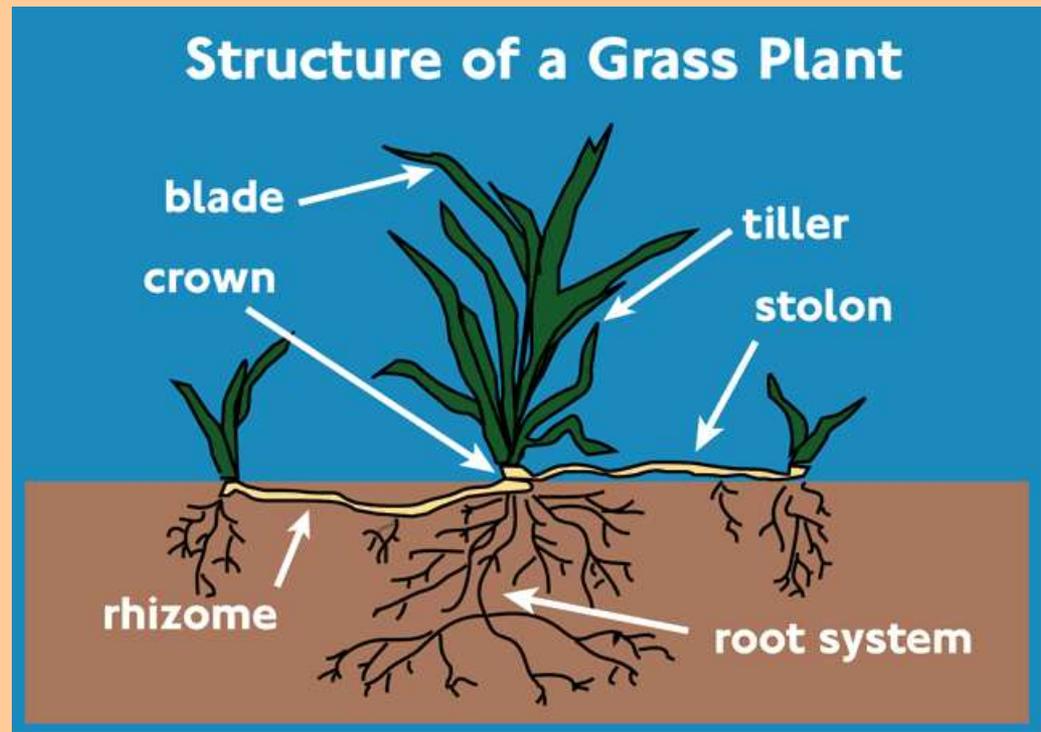


Chapter 5: Turf

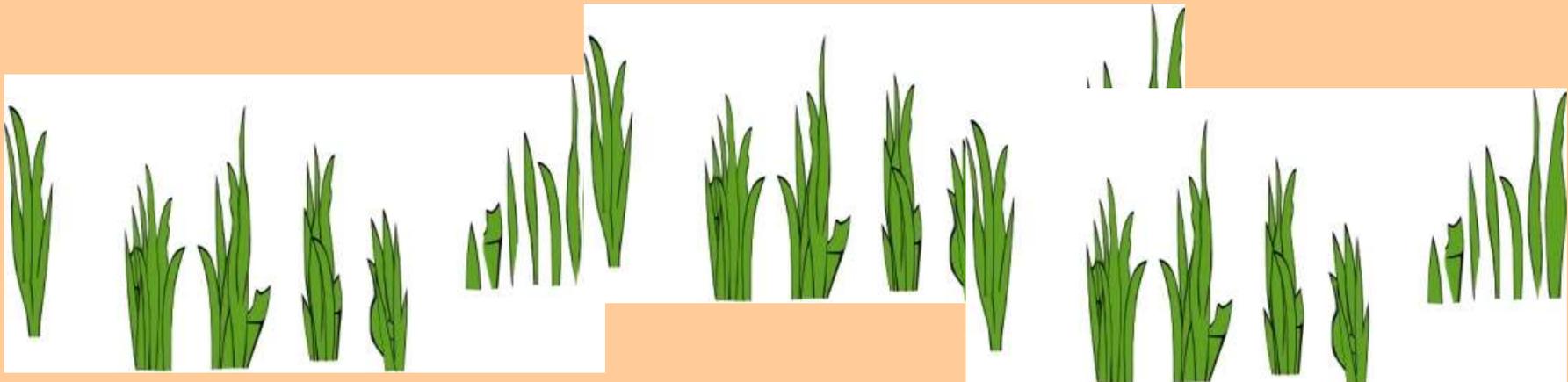
Chapter 5 Objectives

- Understand grasses, types, and mowing heights
- Know when & where turf works
- Identify and prevent turf stress
- Keep debris off impervious surfaces
- Learn about low-maintenance, no-mow zones

Grass is a plant



A lawn is composed of LOTS of individual plants



Types of Grass



St. Augustine

Most common lawn grass: Shade-tolerant varieties; Needs extra water; prone to pests (chinch bugs), thatch; mow height 3.5"- 4" standard and 2"- 2.5" dwarf



Zoysia

Less nitrogen needed; does well in heat, but very slow growing; not shade tolerant; can get brown patch; mow height 1.5"- 2.5"



Bahia Grass

Most water-thrifty, needs less fertilizer, but difficult to mow; can get weedy, prone to mole crickets; mow height 3"- 4"



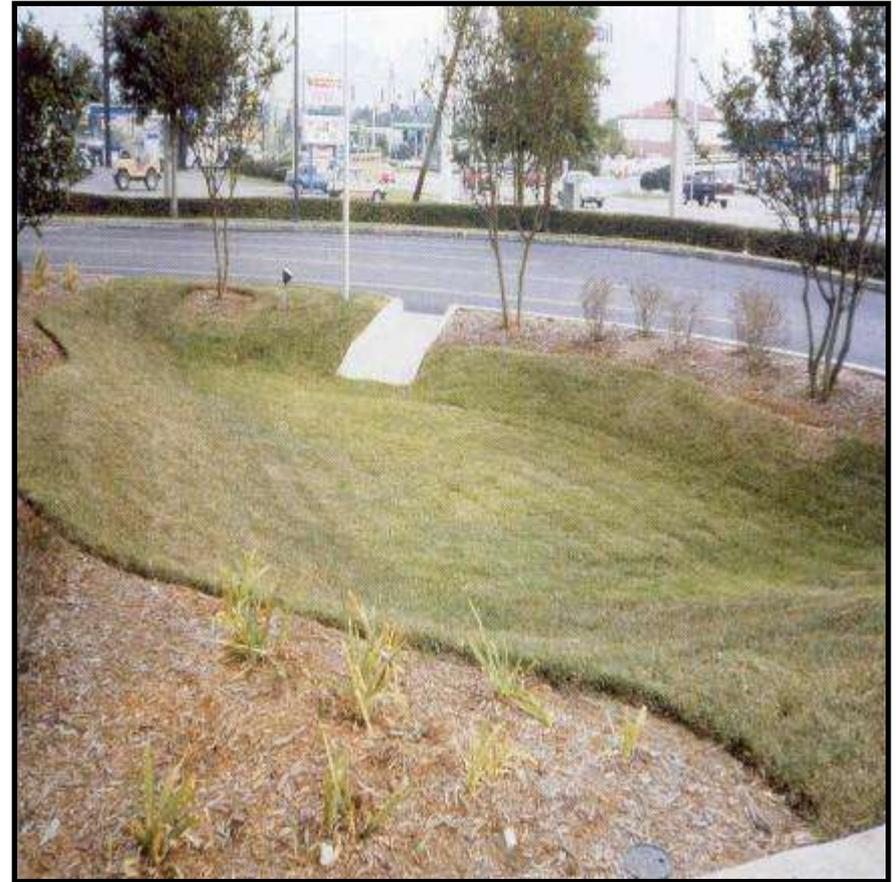
Bermuda Grass

Good in full sun; drought and salt tolerant; prone to pests and disease; mow height 0.5" – 1.5"

How Does Turf Reduce the Effects of Nonpoint Source Pollution?

Healthy turf will:

- Slow down stormwater
- Filter and remove contaminants
- Reduce erosion
- Protect groundwater



Mower Blade Maintenance

- Dull blades tear instead of cut
- Sharp blades cut clean
- Torn blades invite disease
- Torn blades lose more moisture
- Keep mower blades sharp!



Recommended 'No-Mow' Zone

Pinellas County recommends a 6' no-mow, low maintenance zone next to water.

This includes Seawalls and Wetlands!



Mowing Heights

Handout



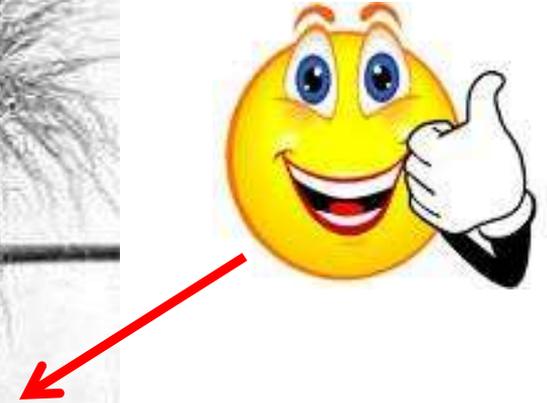
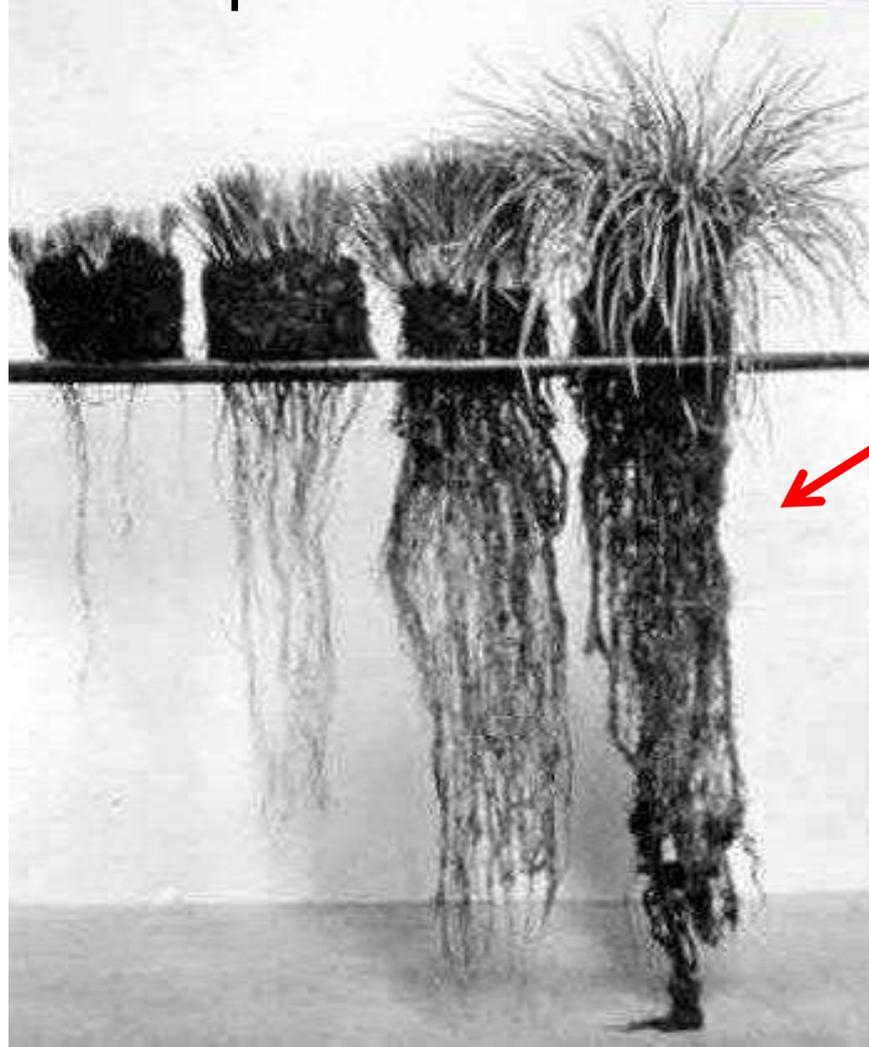
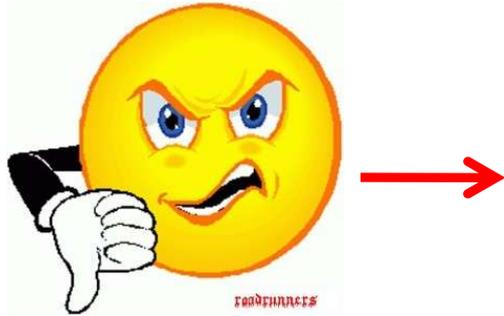
Bahia	3 - 4"
Standard St. Augustine	3.5 - 4"
Dwarf St. Augustine	2 - 2.5"
Zoysia	1.5 - 2.5"
Bermuda	0.5 - 1.5"

Mowing below recommended heights is the main cause of turf death!

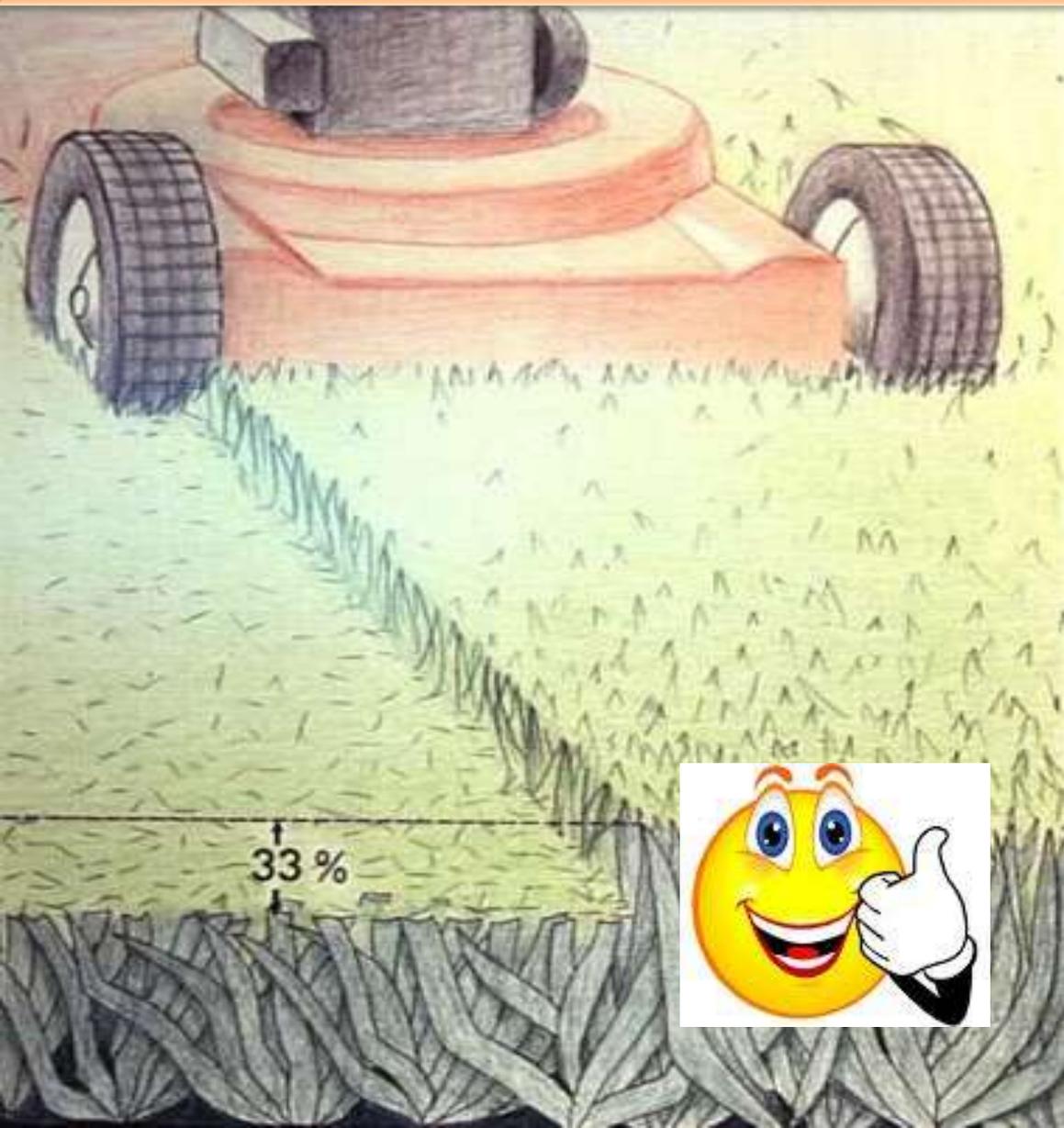


Mowing Heights

Grass mowed higher is more drought tolerant and pest resistant



Mowing Heights



Remove only 1/3 of the leaf blade at each mowing

EXAMPLE:

Let St. Augustine reach 6 inches before mowing, then cut 2 inches off top

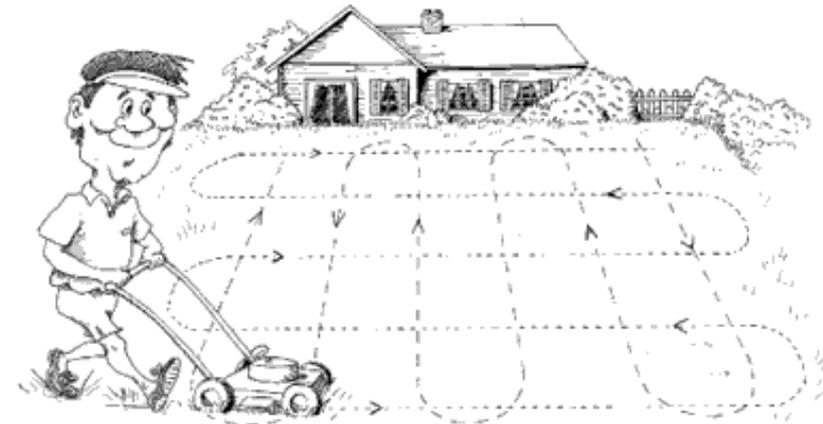


Tip: Clippings don't cause thatch, over watering and over fertilization causes thatch

Mowing and Disease Management



Alter mowing pattern if leaf disease present!



- Mow when grass is dry
- Mow diseased area last

Risks of Mowing Wet Turf

- Uneven cut – grass is bent over with water weight
- May spread disease
- Causes clumps
- Extra wear and tear on mowers
- Hard to blow clippings when wet



Water just before, or just after sunrise
(early morning)



Mowing Debris Management

Handout

- Have pride in your work, don't leave a mess!
- Blow clippings back into turf
- Don't make more work for yourself. Aim your discharge shoot back to the turf!



Disease and Pest Prevention



Clean equipment on the grass before going to the next property

Reduces the Spread of Pests

Reduces non-point source pollution

Mowing Debris Management

Never sweep or blow debris into water bodies or storm drains!!!

Fines for violation

Handout



Clean up after yourself!

Turfgrass Stress



- Improper mowing
- Nutrient deficiencies
- Over-fertilization
- Pests
- Shade
- Improper watering

Scalping Injury

Scalping the lawn is killing the lawn!



Pests in the Landscape

- Improper landscape practices or wrong site conditions for a particular species
- Cultural practices (improper fertilization, irrigation, mowing) can contribute
- Simply treating the pest will not cure (find cause of pest problem)
- Overwatering can promote disease
- Stressed plants have less resistance to pests



Turf vs Shade

- Trim branches to allow more light
- Increase mower height
- Reduce irrigation
- Reduce traffic and other stresses
- Replace with shade tolerant ground cover or mulched bed



Shade Tolerance

Species and cultivar shade tolerance vary widely

- Best: Dwarfs
 - Captiva, Delmar, Seville
- Best: Standard
 - BitterBlue, DeltaShade
- Fair: Palmetto
- Worst: Floratam



Chapter 6: Equipment Safety Maintenance & Storage

Chapter 6 Objectives

- Know the basics
- How to keep mechanical fluids out of the water
- What to do with spills
- How to safely store and transport materials
- How to protect your equipment

Keep the blades sharp!



Blades need to be sharpened every 8-10 hours of use.

Tires, Deck, Blade Height

Make sure tires are properly inflated...



Confirm by measuring blade height.



Deck set at 4 inches...

Maintenance

- Fix your leaks!
- Always perform maintenance on impervious surfaces, ALWAYS catch or absorb spills





One quart of oil creates an oil slick the size of two football fields



Secondary Containment



Source: chemical-cabinets.com



Source: mobilsat.com



Source: amazon.com



Safe Transportation & Storage

Store material indoors:
-protect from weather
-in a fire safe cabinet



Clean up spills immediately!

Use sand or kitty litter to absorb equipment fluids



One gallon of oil can pollute a one-year supply of drinking water for 50 people



Equipment Safety

Pick It Up before you mow!



PROTECT:

- Your equipment
- People around you
- The environment!

Chapter 7: Irrigation

Chapter 7 Objectives

- Understand the difference between “frequency” and “duration”
- Troubleshoot irrigation systems
- Know where rain sensors should be located
- Know watering restriction schedule
- Identify water stress
- Identify signs of overwatering

Watering Your Lawn

The average Floridian uses about 124 gallons of water each day

Outdoor water use accounts for 50% of water used by households

Florida consumes more fresh water than any other state east of the Mississippi River



Irrigation may not be your job

But it can have a big effect on water use!

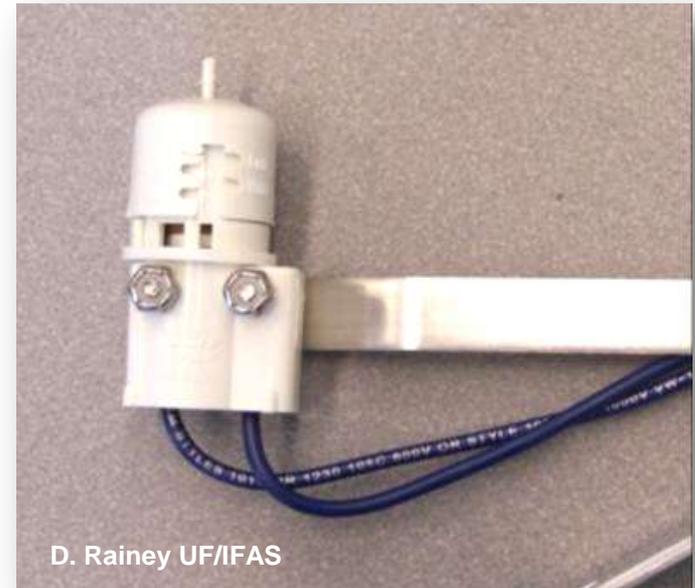


Be A Water Saver

- Inspect your sprinkler system
- Repair any problems, adjust spray heads and nozzles so you're not watering hard surfaces
- Adjust your timer seasonally!
- Water just before, or just after sunrise
- Make sure you have a working rain sensor: Florida law requires it!

Clue: If it's raining and the sprinkler system is running, your customer doesn't have a rain sensor or it's not working

Obey Local Watering Restrictions!



D. Rainey UF/IFAS

Rain Sensor Location

Good Location



Bad Location

Why?

What will be the result?

Frequency vs Duration

Frequency
is how often
you irrigate
a zone

Duration
is how long
the zone runs



**Duration determines how
deep the water goes.**

Check Watering Restrictions

- ✓ Statewide water restrictions prohibit watering
- ✓ Notify if watering is occurring during restricted times

**No Watering
10 a.m. to 4 p.m.**



How to Tell When A Lawn Is Thirsty



- The grass has a dull, bluish-gray color
- Footprints remain in the grass
- Leaf blades are folded in half

Apply water when about 50% of your grass shows wilt.



How to Tell When Plants are Thirsty

- Soil samples from the root zone are dry and crumbly.
- Drought sensitive plants show wilting.



Established drought tolerant plants may require little or no irrigation.

Water Less, Weed Less

These weeds love lots of water:

- Sedges
- Dollar weed
- Bluegrass
- Alligatorweed
- Goosegrass



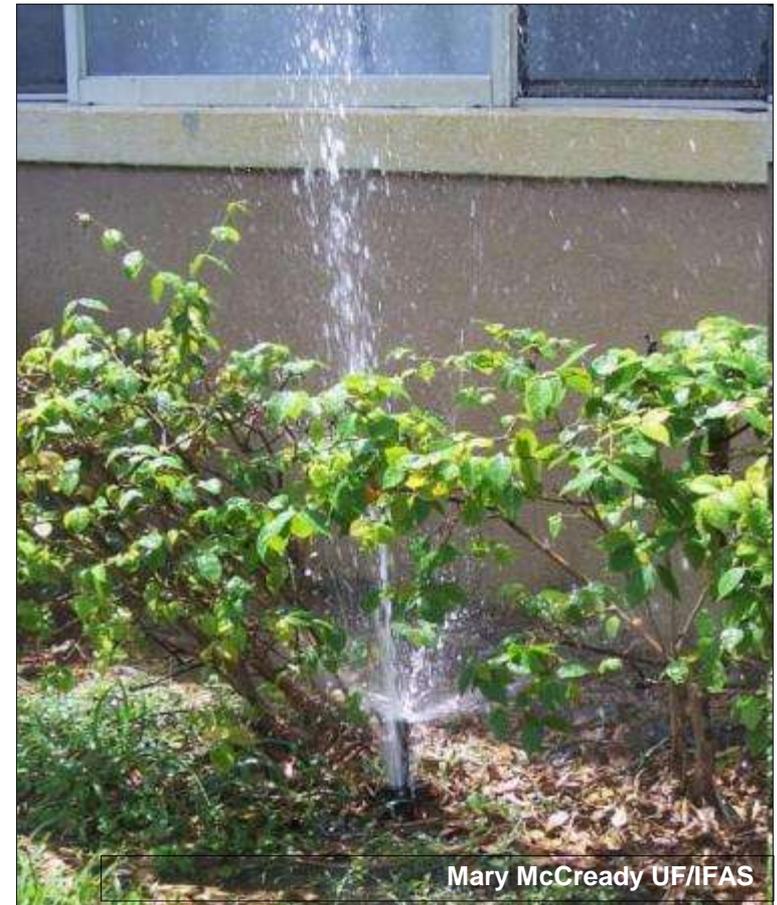
Handout



Troubleshooting

Common Problems:

- Clogged sprinklers
- Leaking sprinklers and valves
- Obstructed sprinklers
- Overspray onto sidewalks, streets or buildings
- Missing nozzles
- Pipe leaks or breaks



Mary McCready UF/IFAS

Troubleshooting

If you see a problem with the irrigation system, tell the client so they can have it fixed.



Notify the client if you see these



Inspect for malfunctioning devices



Notify the client if you see this

Responsible Irrigation Management

- Saves water
- Improves plant health and water quality
- Reduces need for fertilizers and/or chemical treatments
- Protects your client's investment
- Reduces runoff and non-point source pollution



Plants Don't Waste Water, People Do!!



Chapter 8: Debris Management

Chapter 8 Objectives

- Learn how water quality is affected by landscape practices
- Learn how to keep debris out of water
- Learn how to prevent spreading invasive plants and other pests
- Learn how debris can be recycled
- Know who to call to report violations

How do unwanted nutrients get to our water bodies?



...from Poor Landscape Management Practices

Handout

Fines for leaving clippings on impervious surfaces!

Blow clippings back onto lawn



BMPs of Landscape Management

Compost or properly dispose of clippings

Fine for leaving yard waste on impervious surface!



Source: junkremovalhauling.com



Source: happyearth.com



Disposing of Debris Safely

- Don't spread insects, disease, or invasive plants
- Secure your debris, use a tarp
- Dept of Transportation will stop you



Stormwater Management

Stormwater Hotline 727-464-5060

You may remain anonymous!

Handout



To learn more...

- These topics are deep and time is short
- Too little time to get into the details
- To learn more...
 - sign up for the email newsletter (form is at registration desk)
 - watch the online event calendar
 - attend classes
 - print & read publications
 - ask questions
- That's how you become - and stay -
a professional