Fertilizing Effectively in Sandy Florida Soils

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SEMINOLE COUNTY
FLORIDA'S NATURAL CHOICE

Presentation Outline

Water quality in suburbia

Best practices in your yard

How to fertilize appropriately

Goals

- Protect our waterways
- Make a difference
- Determine your lawn care program

Creating beautiful lawns and protecting our waterways

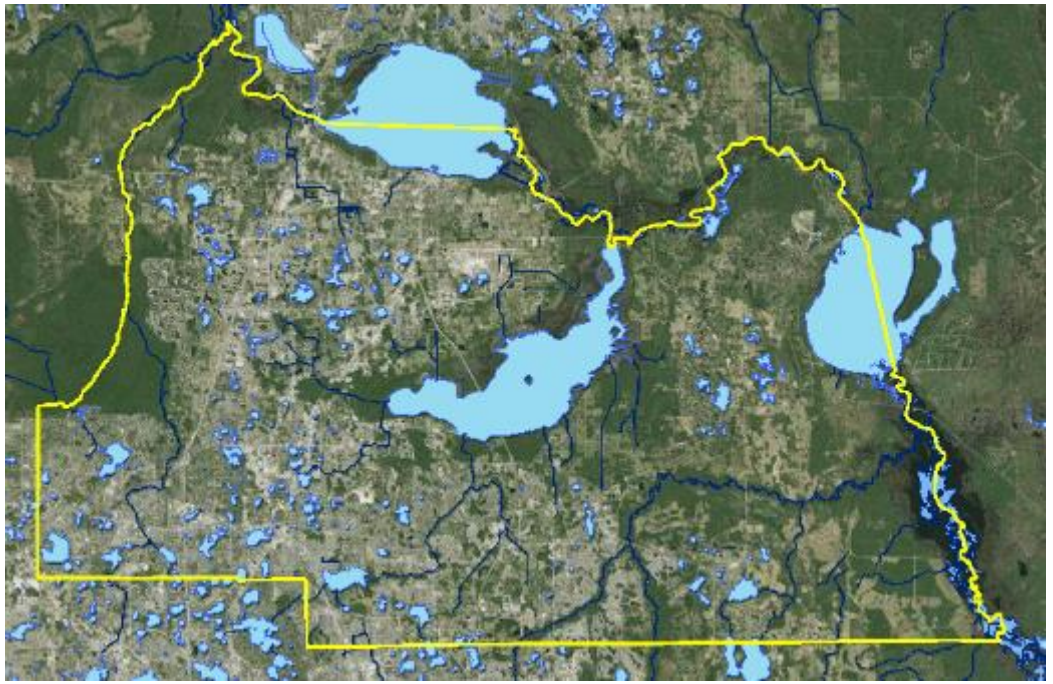
Seminole County waterways

We have 2081 lakes and ponds that fill 34,054 acres or 15% of the county

43 miles of rivers and streams, including the Wekiva River and St. Johns

We have 13 major springs

We have 220,000 + households within Seminole County



The importance of water quality

- Human health
- Wildlife value
- Recreation

Florida-Friendly Landscaping™ PROGRAM

- Protects Florida's unique natural resources
  - ✓ Conserving water
  - ✓ Reducing waste and pollution
  - ✓ Creating wildlife habitat
  - ✓ Preventing erosion

- Nine principles

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Florida Department of Environmental Protection

The Nine Principles!

Right Plant, Right Place

Water Efficiently

Mulch

Fertilize Appropriately

Recycle

Attract Wildlife

Control yard pests responsibly

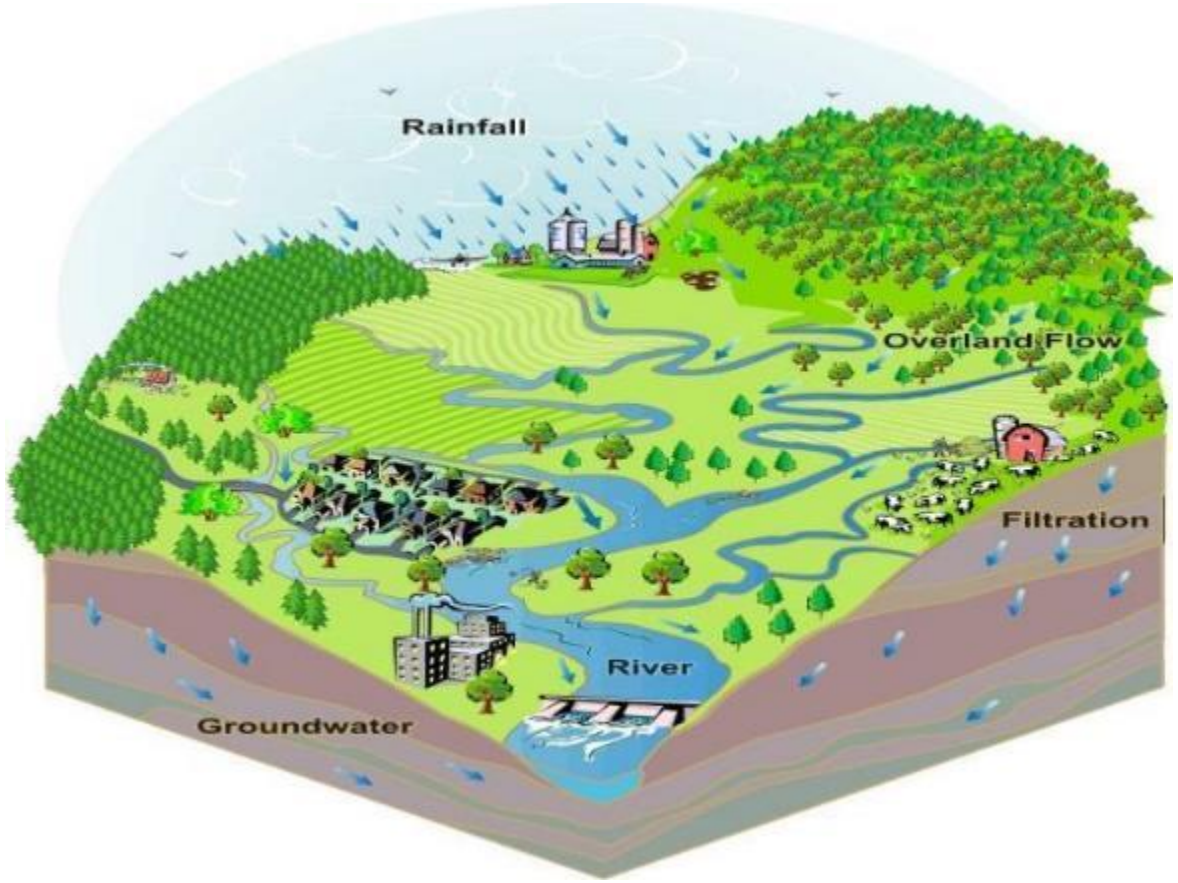
Reduce Water Runoff

Protect the Waterfront

Your Landscape & Your Watershed

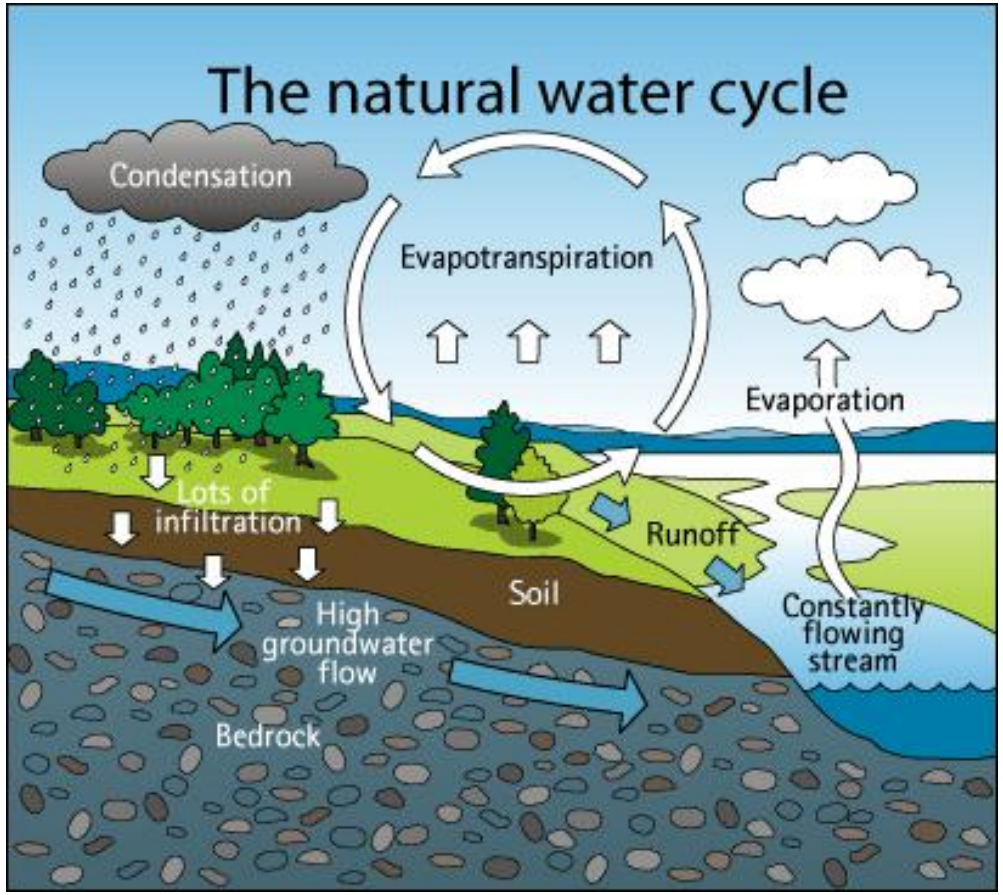
QUALITY AND CONSERVATION

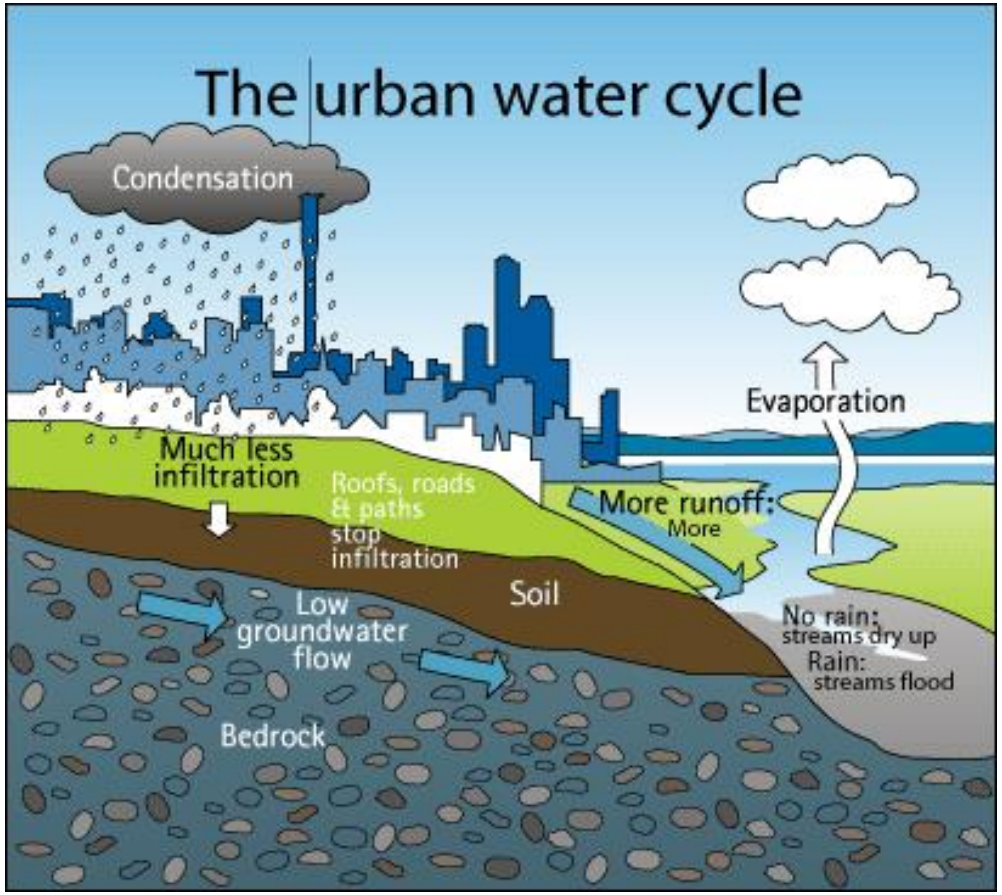
What Happens In A Watershed



Pollution Problems

Stormwater Runoff/ Non-Point Source





Florida’s Unique Soils

Naturally low levels of organic matter and sandy

Organic matter increases water holding capacity

Organic matter increases nutrient holding capacity

Non-Point Source Pollution

Nutrients (nitrogen & phosphorus)

Bacteria

Sediment

Toxic organics

(oil & pesticides, for example)

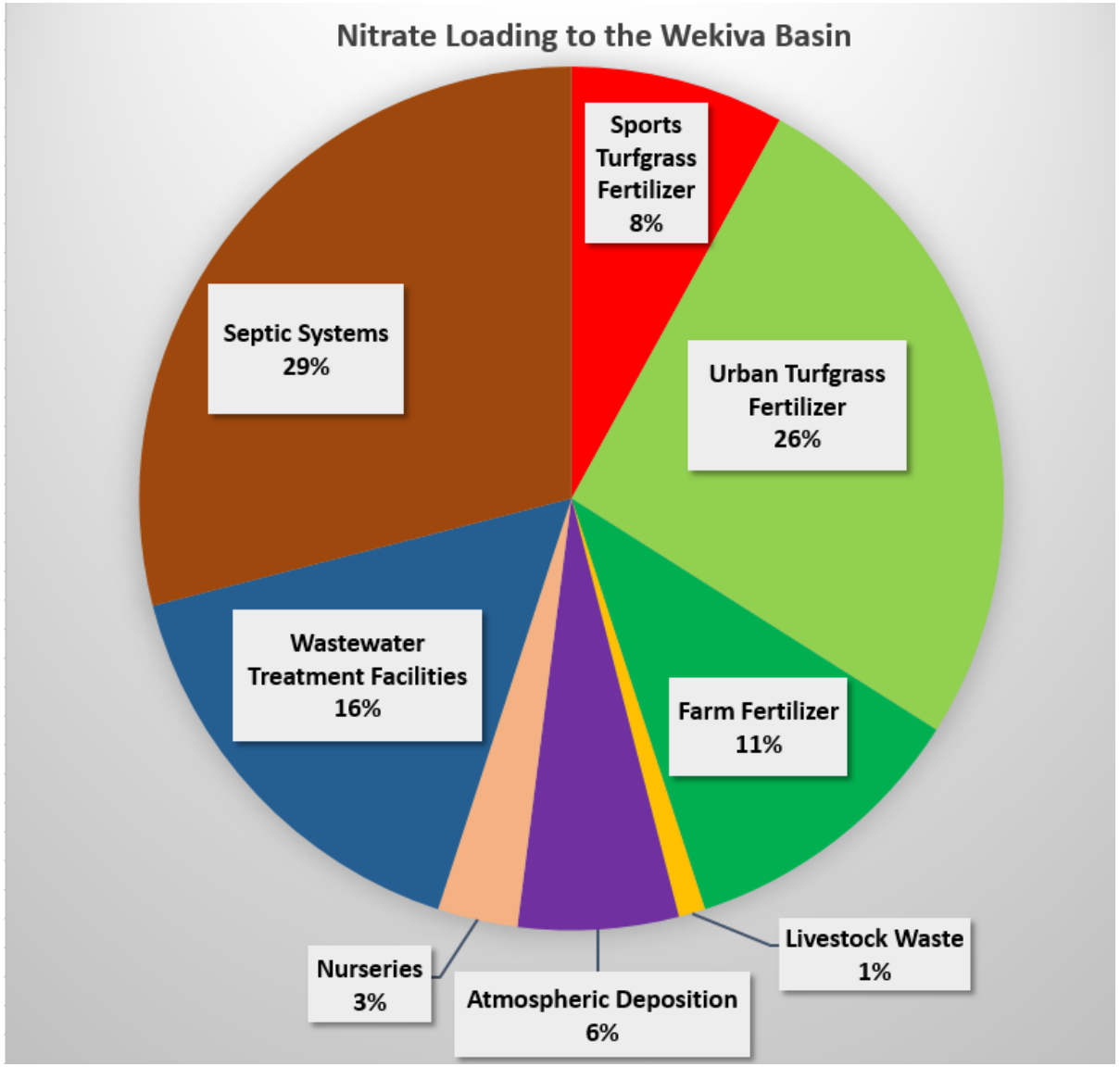
Stormwater

Water washes pollutants into storm drains and/or into surface water

- Trash, grass clippings, pet wastes, pesticides, household chemicals, oil, fuel, septic tanks, and improperly applied fertilizer

Stormwater is a significant polluter of our surface water

Nutrient sources



%Lawn fertilizer

Reclaimed water

Grass clippings

The atmosphere

Pet waste left on the lawn

Eroded soil particles

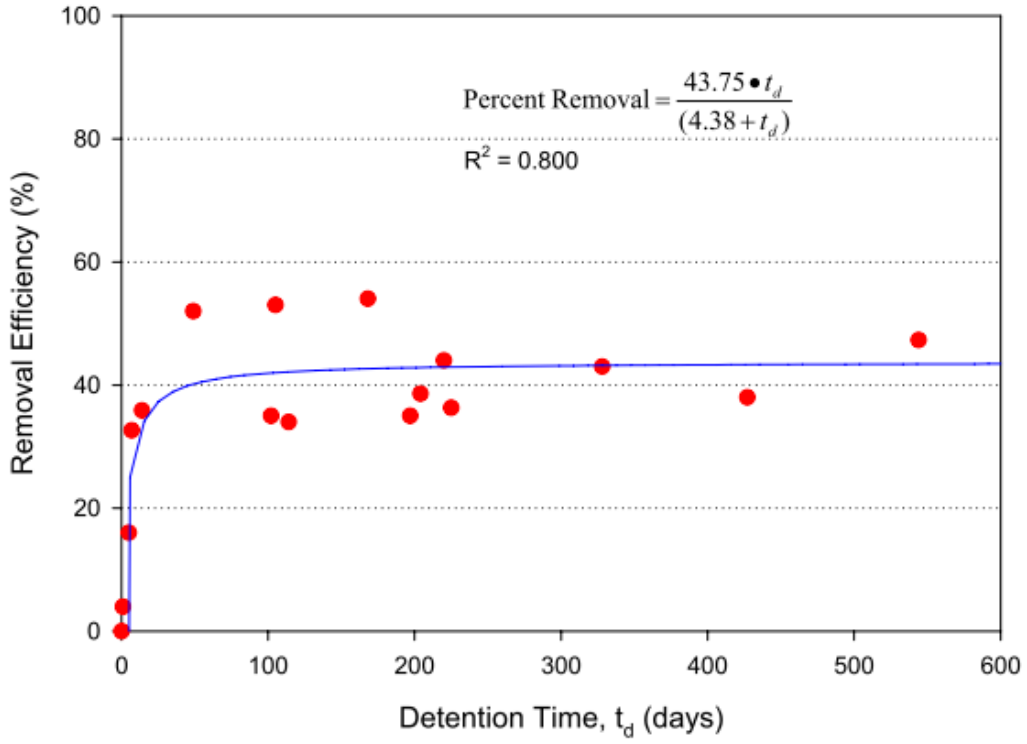
Faulty septic system

How we manage it

Wet retention ponds

- Capture stormwater runoff
- Suspended materials settle
- Littoral plants can absorb nutrients
- Water is gradually released to water bodies, for example the Wekiva or St. John’s River

Your actions matter!



Urban stormwater ponds only remove around 50% of incoming nitrogen

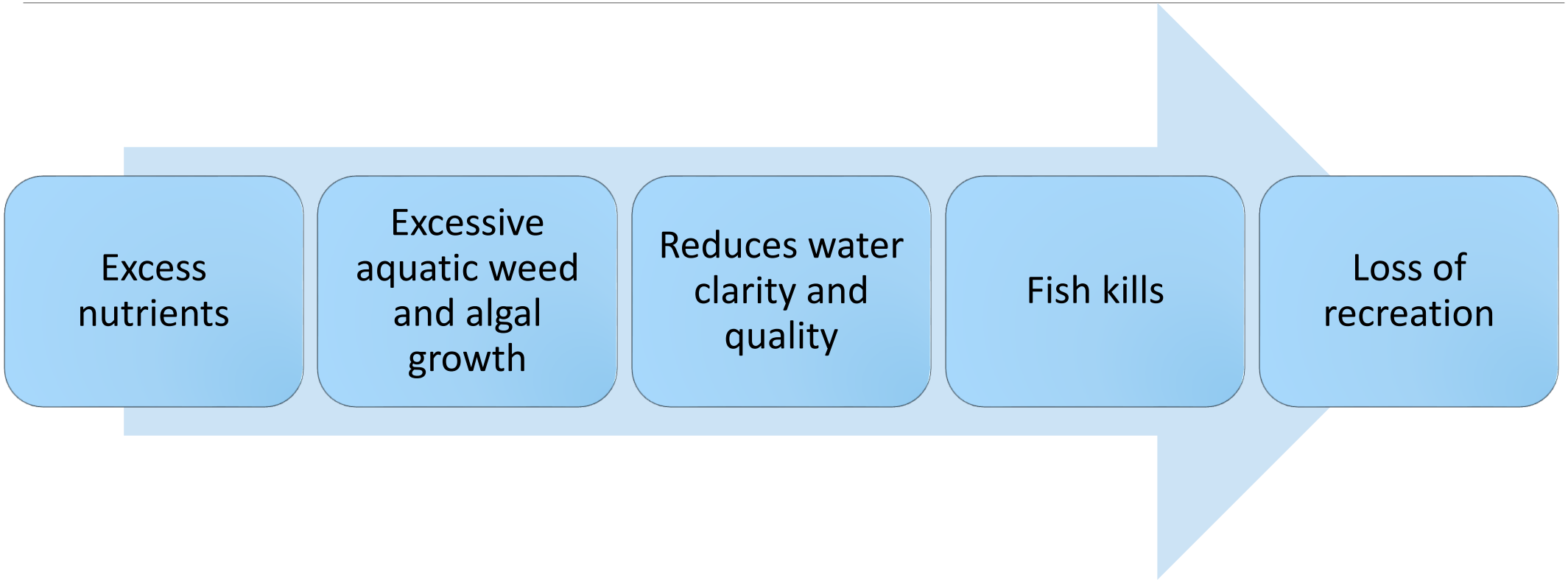
What's the solution?

Prevention!

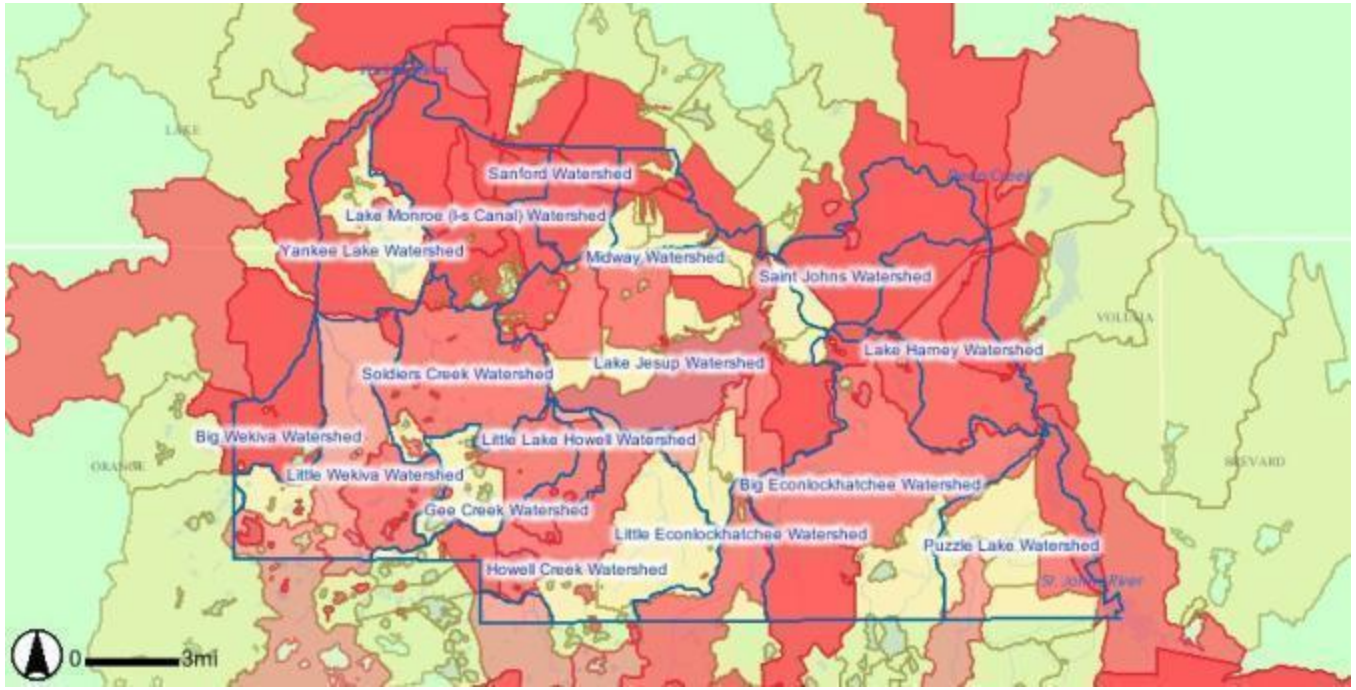
Impaired Stormwater Pond

Algae and nuisance weeds grow with nutrient-rich water

Waterbody impairment



Our Water Bodies Are In Danger



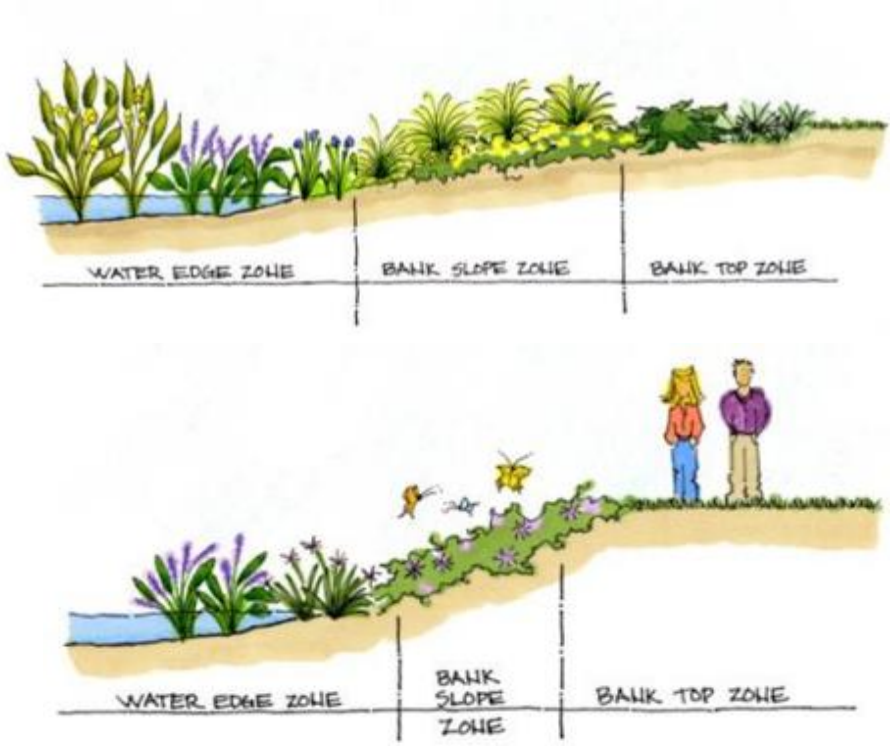
- Red indicates areas in Seminole County with impaired waterbodies
- Impaired from too many pollutants, such as Nitrogen and Phosphorus and certain bacteria

Improve your waterfronts

No fertilizer within 15 ft of the water

10 ft (or more) low maintenance zone
- No mowing
- No pesticides or herbicides
- Plant shoreline and aquatic plants

A vegetated shoreline
- Helps erosion control
- Provides habitat
- Absorbs nutrients
- Reduces temperature



Remember the slope of your shoreline influences runoff, erosion, and plantings

How can YOU help?

Reduce Nutrients and Pollutants

Have a Healthy Landscape

Keep Water on Your Lawn

Reduce Nutrients & Pollutants

Fertilize appropriately

Maintain grass clippings and yard trimmings

Add plants to absorb nutrients

Keep A Healthy Landscape

Right Plant, Right Place

Water efficiently

- Too much water will stress your plants

Top dress with compost

- Compost is not considered fertilizer in the ordinance so you can apply year round
- Apply ¼- ½ inch layer of organic matter over the lawn every 6 months

Address bare patches

Bare dirt can lead to EROSION

Cover with vegetation

Soil erosion carries sediment and possibly N & P

Mondo Grass (Shade)

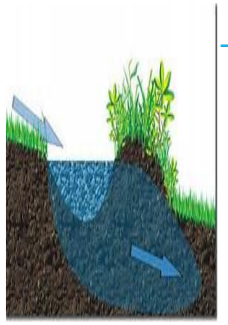
Perennial Peanut

Full Sun

Keep Water on Your Lawn

Downspouts

Rain Barrels



Swale and Berm

Rain Gardens

Downspouts

Redirect downspouts so the runoff washes over vegetation, not the driveway or roads

Direct downspouts into rain barrels

Rain Barrels

$3,500 to remove 1 pound nitrogen from surface water

OR

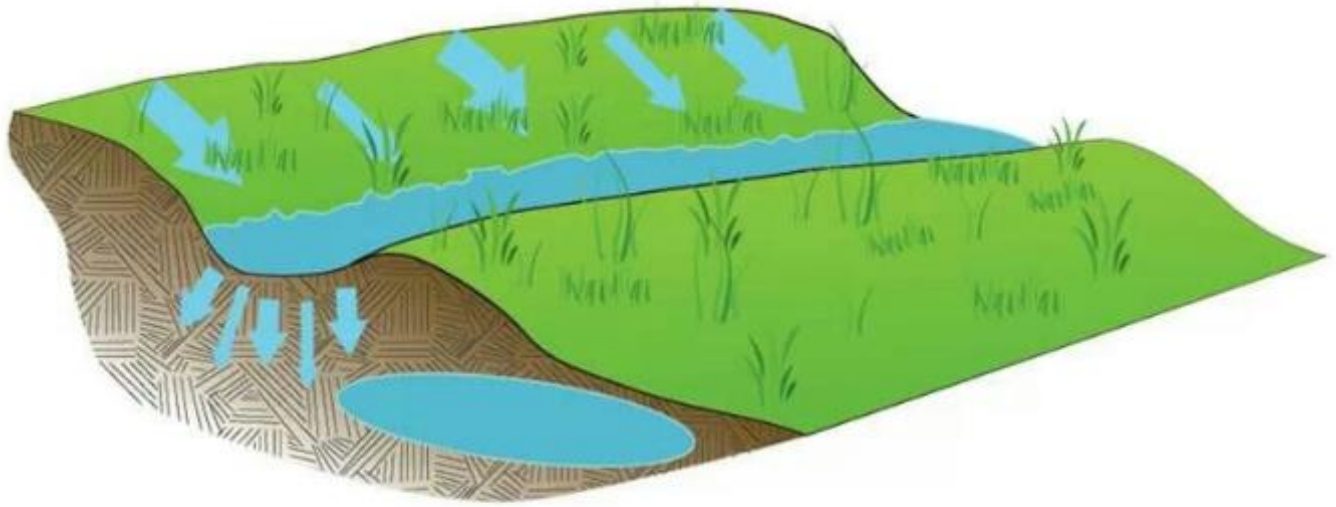
20 rain barrels (55 gallons) can capture one pound of nitrogen

Rain Gardens

Rain gardens filter approximately 40% of metal pollutants from roof shingles, automobile fluids and soil

Approximately 15% of nitrogen from fertilizers, pet waste and organic matter can be filtered by rain gardens

Swale & Berm



Shaping land to retain water in swale

Berm prevents outflow

Allows for absorption into ground

Mulch

Reduces erosion

Holds in soil moisture

- More effective irrigation

Reduces weeds

Apply 2-3 inches

Allow for circulation. No volcano mulching

Pervious surfaces

Allows stormwater runoff to soak into the ground

Several materials

Good for walkways, driveways and lower traffic areas

Lawn Care

BEST MANAGEMENT PRACTICES

Top Two Turf Stressors

1. Improper water amounts
2. Mowing too short

Irrigation

Why do we irrigate?

- To keep plants healthy

Look for signs of drought stress

Water efficiently according to plant needs

How much irrigation?

½” to ¾” per application

Address	Nov – Mar	April - Oct
EVEN	Sundays	Thursdays/Sundays
ODD	Saturdays	Wednesdays/Saturdays

During the cooler months, when grass is not actively growing, water every 10 to 14 days

Calibration: Catch-Can Method

Place cans around irrigation zone and turn on system

Measure the amount of water in each can

- Are the amounts in each can similar?
- Is there ½ to ¾ of an inch of water in each can?

Consequences of too little/much water

Root systems compromised

Pest problems increase

Thatch increases

Drought tolerance decreases

Weeds increase

Weed Indicators of Over-watering

Nutsedge

Dollarweed

Irrigation systems

Pop-up sprayer

Rotor

Micro


Creativecommons.org

Manage Rainfall

Since 2009, Florida Law requires a ***functioning*** rain shutoff device

Set at ¾ of an inch

Can shut the system off during a rainstorm and/or keep it off if it has rained recently

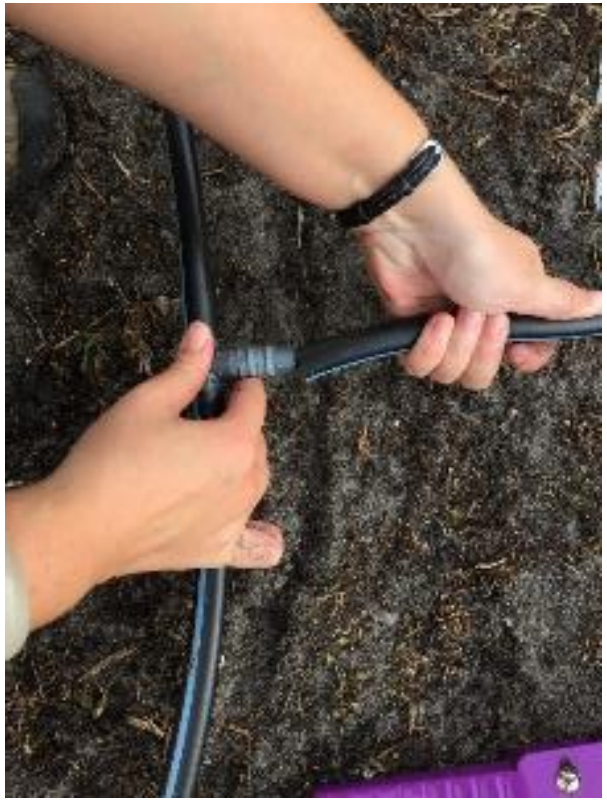
Micro-Irrigation of Landscape Plants

Micro-irrigation delivers water x10 more efficiently to plants

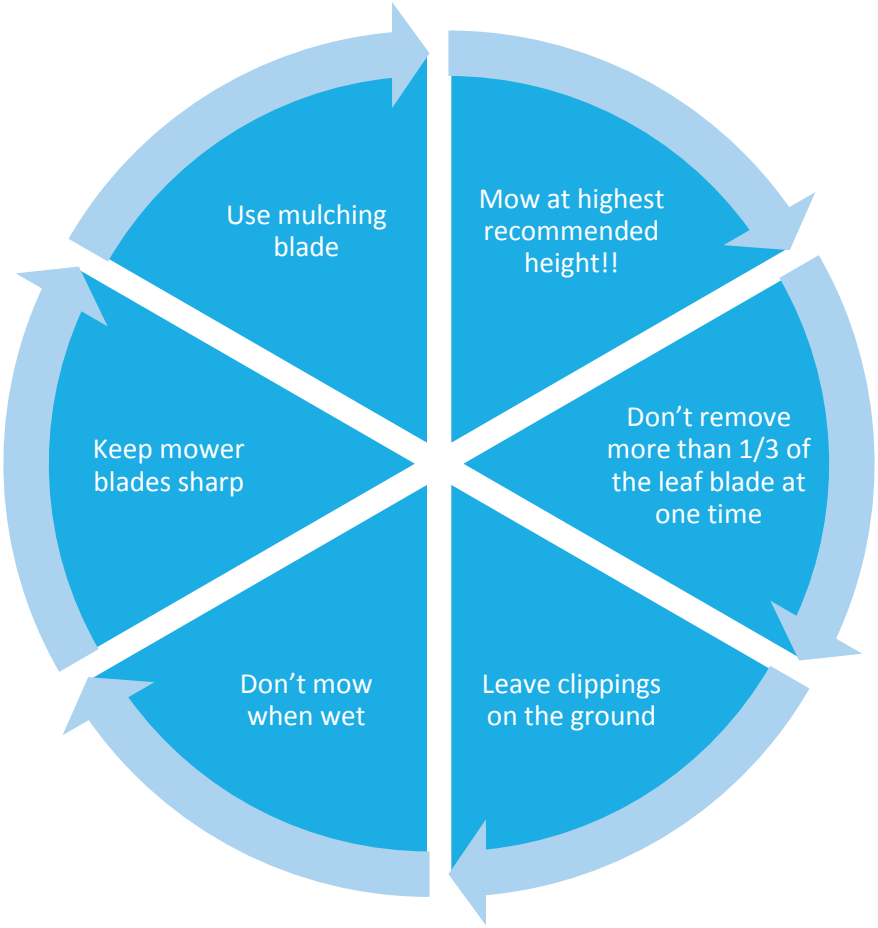
Less water, less runoff

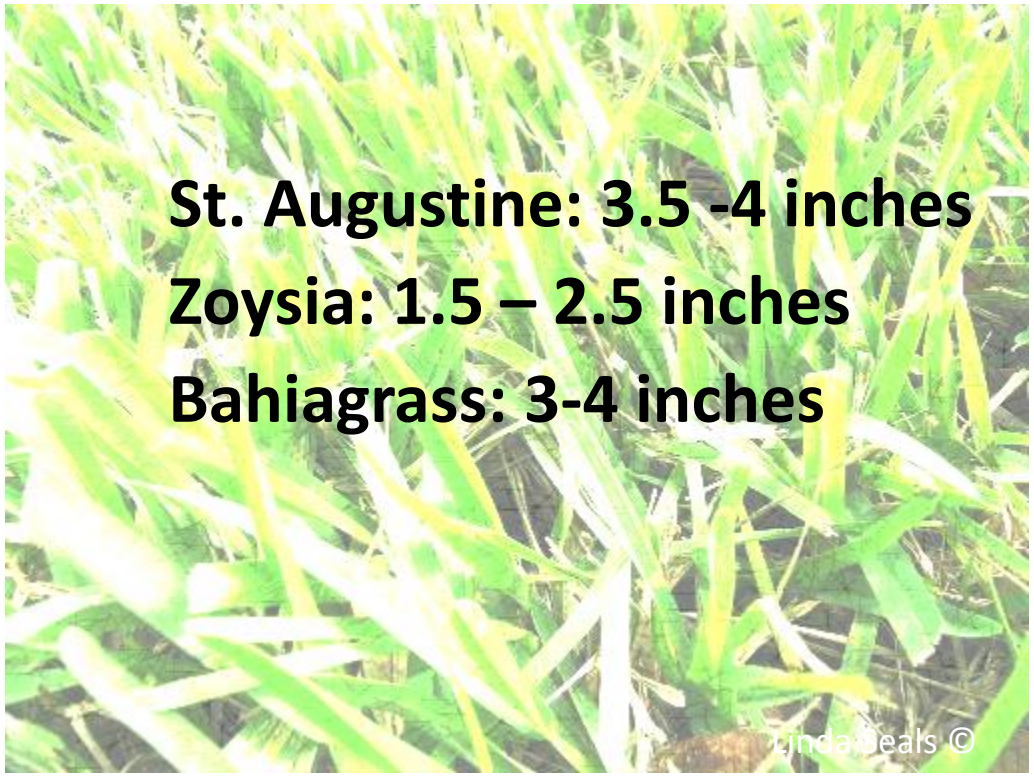
Easy to install

Only appropriate for landscape beds



Best Mowing Practices





Grass Clippings

The average home generates 400 lbs in one year!

Grass clippings decompose into nitrogen and phosphorus

Never leave on paved surfaces

Never let them get into storm drains

Weed’n’Feed

Not recommended by UF IFAS

Treatment times differ for nutrients and weeds

<u>As an alternative:</u>

Consider a pre-emergent herbicide before Feb 15

Spot treat with herbicides after they have emerged depending on weed type

5 minute break

Fertilize Appropriately!

- What to use
- When to use it
- How much

Plant Nutrients

Environment	Macronutrients	Micronutrients
• Carbon • Hydrogen • Oxygen	• Nitrogen • Phosphorus • Potassium • Calcium • Magnesium • Sulfur	• Iron • Manganese • Boron • Copper • Molybdenum • Zinc

Essential Macronutrients

*Nitrogen

- Nitrogen promotes plant growth and makes up part of the chlorophyll

*Phosphorus

- Should only be applied if a soil test indicates deficiency. Promotes flowering and fruiting

Potassium

- Strengthens roots; increases disease resistance and cold tolerance

*Potential pollutants

Soil Testing

The first step to creating a beautiful lawn!

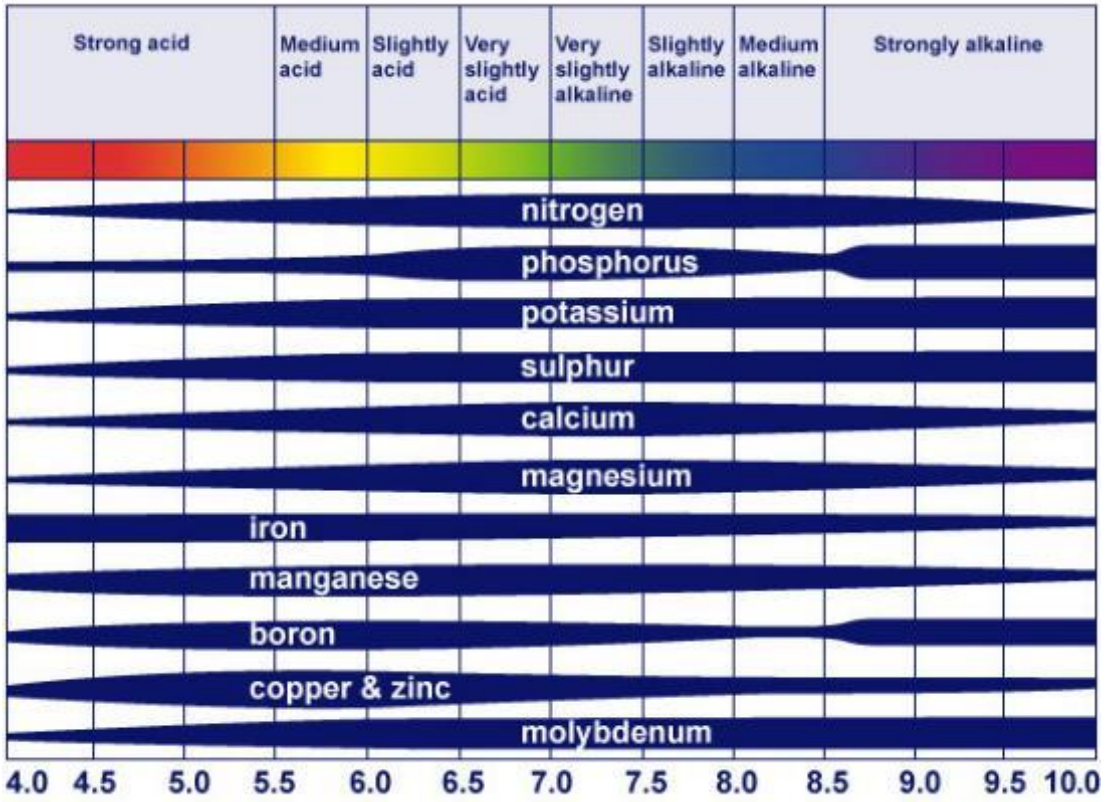
Determine soil pH (Free test at Extension)

Test macronutrient levels

Phosphorus testing is particularly important

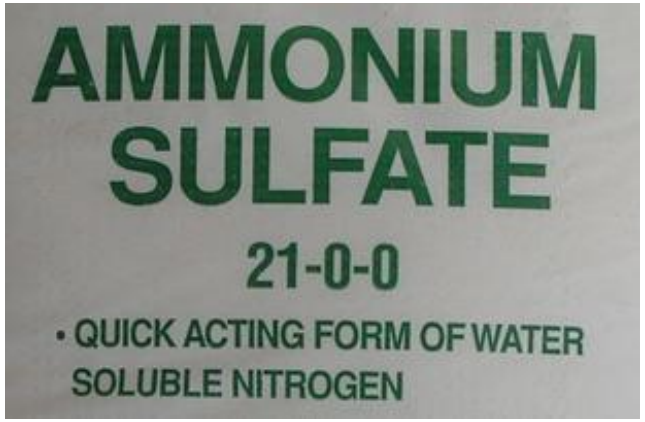
Measure levels of manganese and magnesium

Soil pH and Nutrient Availability



Quick-Release Nitrogen

Forms: Urea, ammonium sulfate, ammonium nitrate



Quick, temporary green up

Quick to gas off, dissolve and wash away

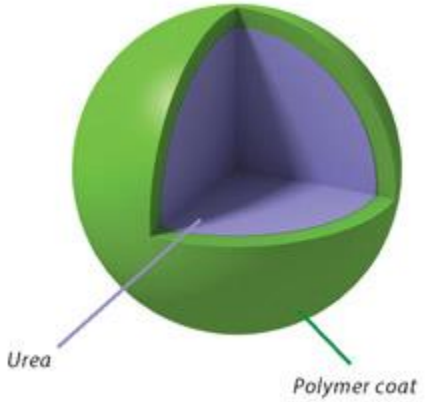
Not permitted in Seminole County ordinance

Excess Soluble N Causes

- Fertilizer Burn
- Diseases
- Poor Root Growth
- Low Drought Resistance
- Low Cold Resistance

Slow Release Nitrogen

Also "controlled release" (CR) or "water insoluble" (WIN)



Seminole County Fertilizer Ordinance requires at least 50% slow release N and will increase to 65% in 2020

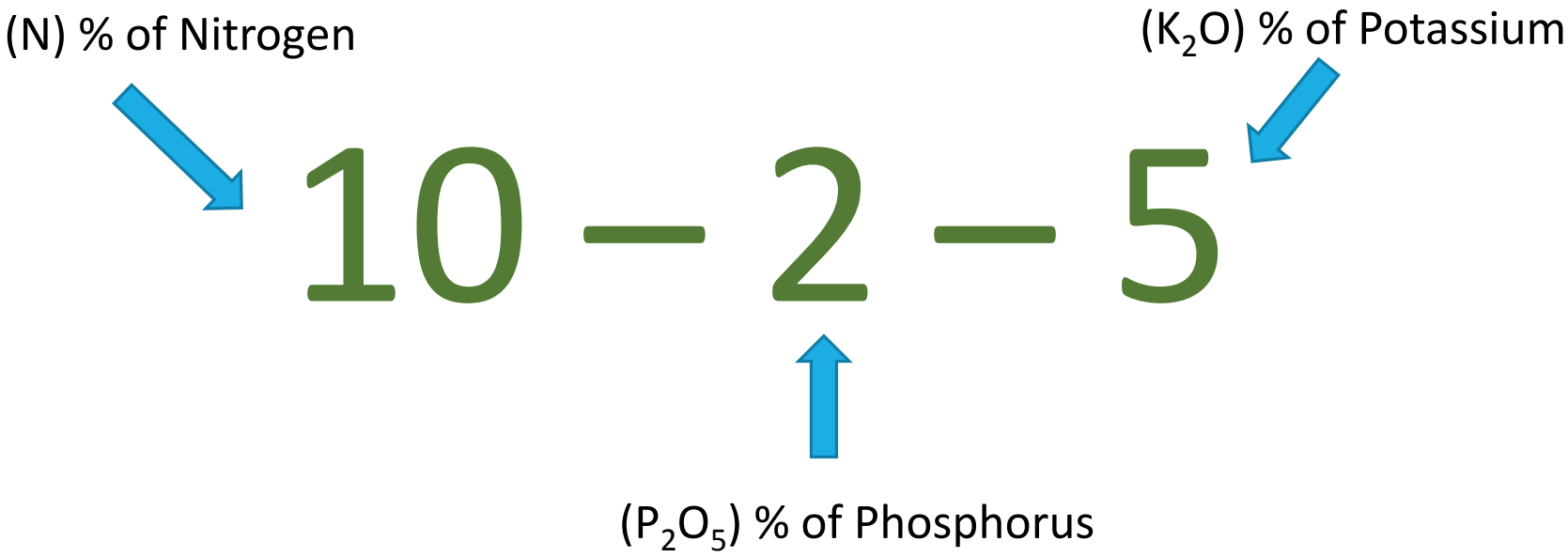
Slow-Release Nitrogen Benefits

- Properly formulated slow-release products last through the summer
- More efficient use of nitrogen means less needs to be applied
- Slow-release results in less nitrogen entering our lakes

Phosphorus –A limiting factor

Phosphorus is often the limiting nutrient in our lakes

Fertilizer Analysis



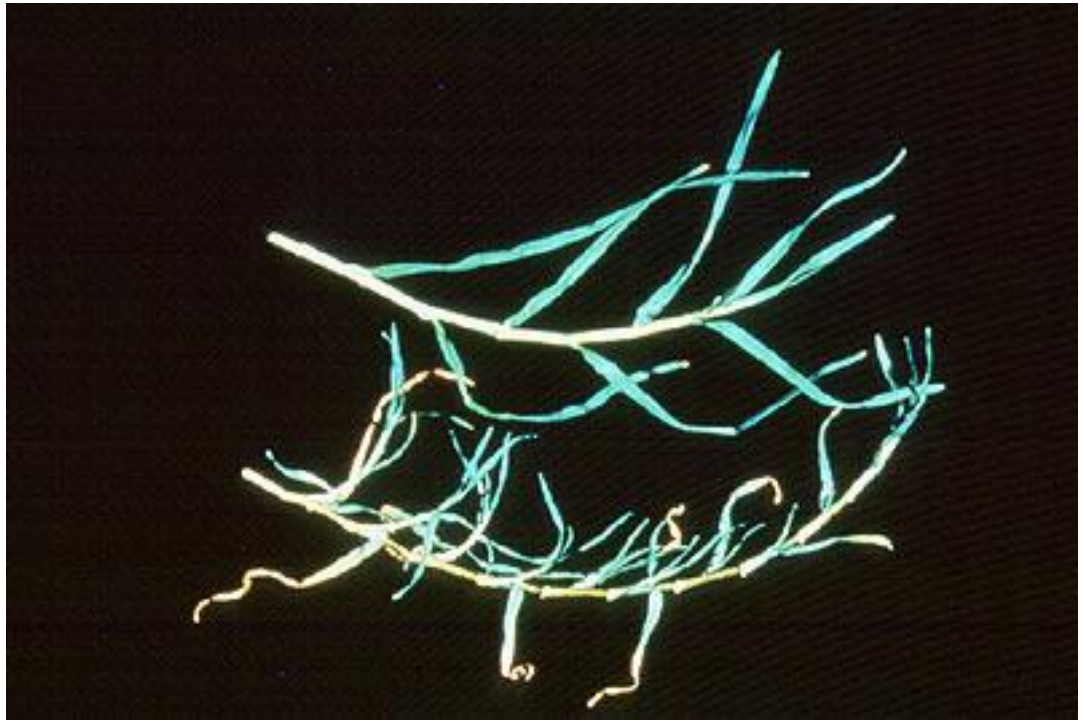
Phosphorus-Free Fertilizer

All plants need phosphorus

Almost all Florida soils naturally have all the phosphorus plants need and therefore it should not be applied

Phosphorus can only be applied if a soil test shows your yard has a deficiency

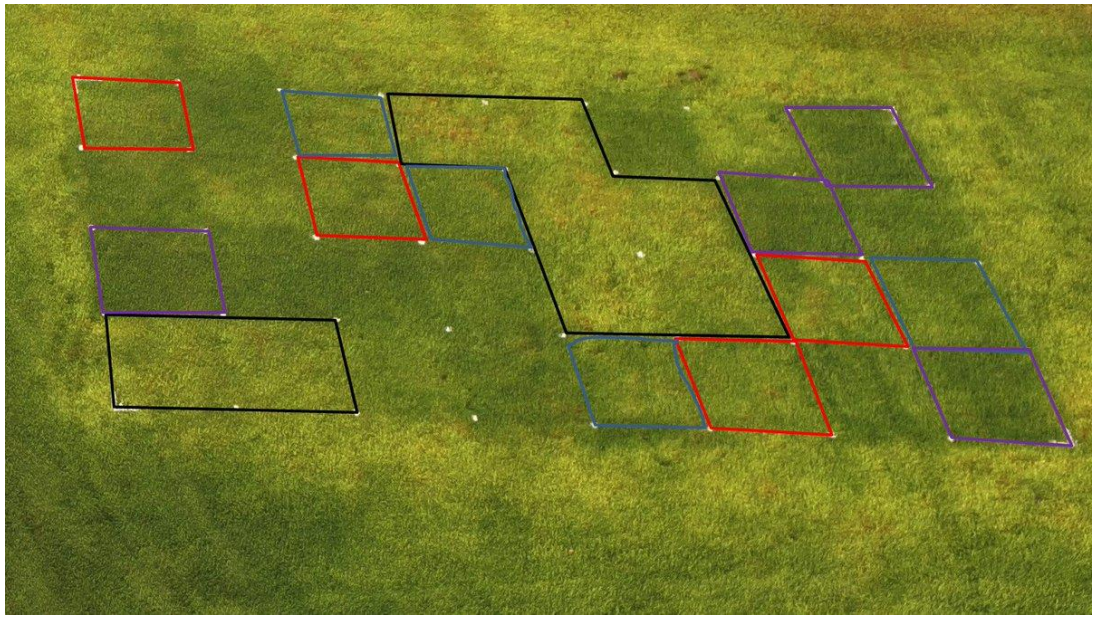
Other Nutrients



Potassium

Magnesium

Other Nutrients



Iron

Disease due to Manganese Deficiency

Fertilizer Timing

Do not apply fertilizer when rain is forecasted!

Fertilizing is prohibited under Flood/Tropical Storm/Hurricane Watch or Warning

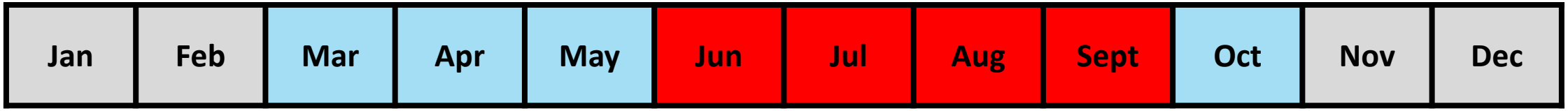
Prohibited when soils are saturated

Don’t Let Fertilizers Wash Away In Rain

Never fertilize within 24 hours of a rain event

Because it rains (and rains hard!) frequently in the summer, Seminole County now has a restricted season on fertilizers with nitrogen and phosphorus

June 1 – September 30 is the RESTRICTED SEASON



Give grass nutrients when it is growing

If Needed, Fertilize In April & October

Your grass wants fertilizer when it's growing, not when it's sleeping!

Give it a boost in April

Help it last through the winter in October

Fertilizing under shady conditions

Extra fertilizer does NOT make turf grow in the shade

Replace turf with shade friendly native plants

Use shade tolerant turf varieties

Reduce fertilizer application by half

Mow as high as practical

Reduce irrigation by half

What About New Sod?

Prepare Site: Level & Remove Weeds

Fertilizing new sod within the first 30 days is PROHIBITED

Root system is underdeveloped and cannot absorb the added nutrients

Generally the sod farm fertilizers prior to selling

Best time to apply lime and/or phosphate if the soil analysis shows a need

Are You Choosing The Right Fertilizer?

Many of the common “Turf” fertilizers are not suitable for Florida

High Nitrogen with little Potassium 

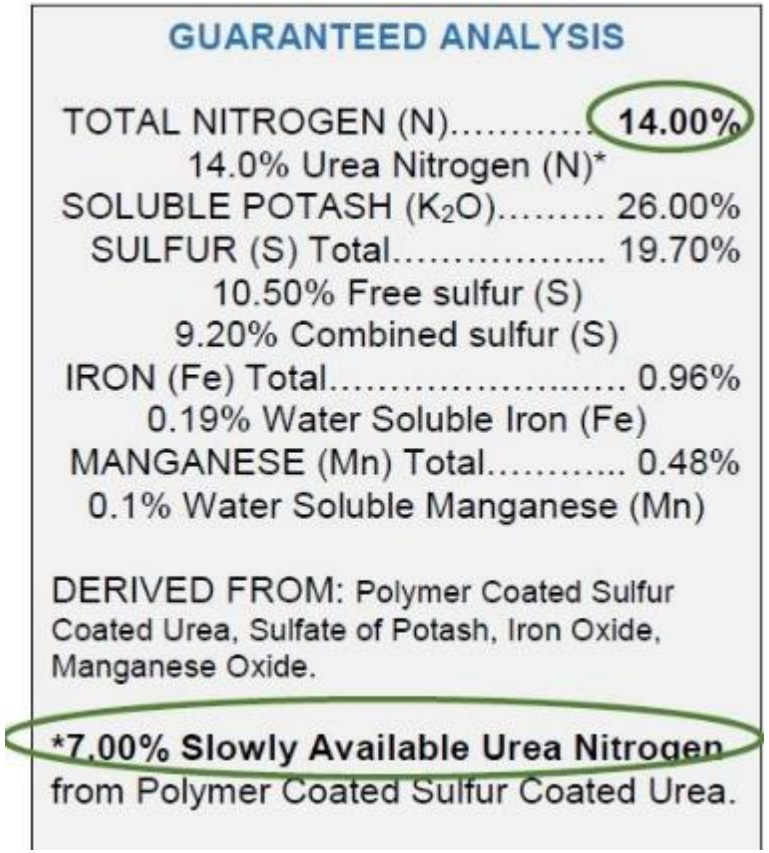
Unnecessary levels of Phosphorus 

Potassium should be at least half the Nitrogen level 

Does it Contain at Least 50% Slow Release N?

Use a fertilizer that is 50% or more slow release

- Find the total percent nitrogen and slow release nitrogen percentage
- Divide the percent slow release by the total nitrogen. Is it 0.50 or greater?
- $7\ \%\ slow\ release \Big/ 14\%\ total\ nitrogen$ = 0.50


GUARANTEED ANALYSIS

TOTAL NITROGEN (N)..... 14.00%
14.0% Urea Nitrogen (N)*
SOLUBLE POTASH (K_2O)..... 26.00%
SULFUR (S) Total..... 19.70%
10.50% Free sulfur (S)
9.20% Combined sulfur (S)
IRON (Fe) Total..... 0.96%
0.19% Water Soluble Iron (Fe)
MANGANESE (Mn) Total..... 0.48%
0.1% Water Soluble Manganese (Mn)

DERIVED FROM: Polymer Coated Sulfur Coated Urea, Sulfate of Potash, Iron Oxide, Manganese Oxide.

*7.00% Slowly Available Urea Nitrogen from Polymer Coated Sulfur Coated Urea.

How much fertilizer do you need?

Recommended Rate

Maximum of 1 lb. (N) / 1,000 ft^2 / Application

Turf Species	Pounds of N per year	Plan for this many applications
St. Augustine	2	2
Zoysia	2	2
Bahia	1	1

How much fertilizer do you need?

The amount needed depends on the nitrogen content.

1 pound of slow release nitrogen fertilizer/ 1000 square feet

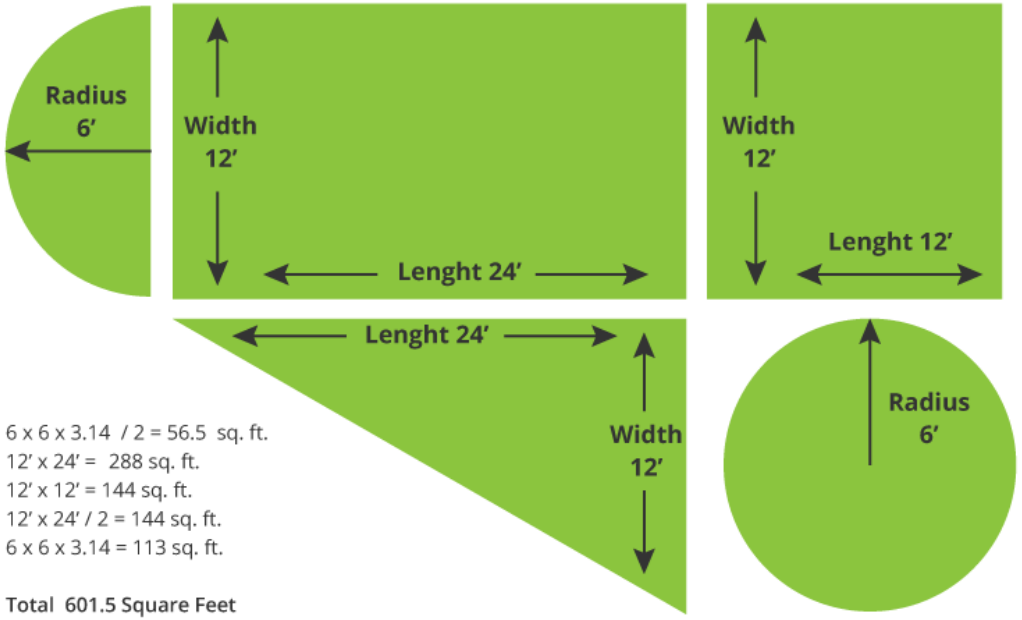
How much fertilizer do you need to put down to get 1 pound of nitrogen?

- Divide the total percent nitrogen into 100
- 100÷Total percent nitrogen= pounds of fertilizer you need

How Big is Your Yard?

Total square footage of yard/ divided by 1000

Multiply that by pounds of fertilizer.

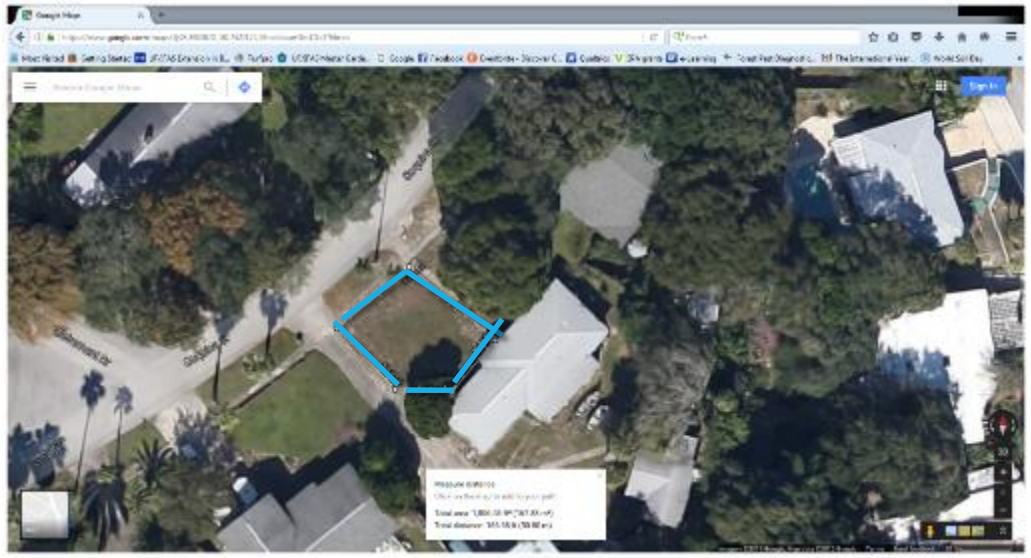


6 x 6 x 3.14 / 2 = 56.5 sq. ft.
12’ x 24’ = 288 sq. ft.
12’ x 12’ = 144 sq. ft.
12’ x 24’ / 2 = 144 sq. ft.
6 x 6 x 3.14 = 113 sq. ft.

Total 601.5 Square Feet

How Big is Your Yard?

Measure the square footage of a yard using Google maps



lawn area ft^2 = length x width
Google measured the blue lines at 1,806.53 ft^2

www.seminolecountyfl.gov/fertcalculator

Fertilizer Calculator

Look at the fertilizer bag for the Total Nitrogen. This is on the front of the bag, the first of the three large numbers, or on the back of the bag on the label.

Enter Total Nitrogen: 15 %

Also on the label, sometimes beneath the total nitrogen or at the bottom of the label, is the percent of slow release nitrogen.

Enter Slow-Release Nitrogen: 10 %

Seminole County requires your fertilizers be 50% slow-release nitrogen.
This fertilizer is a slow-release product. You can apply up to 1 pound of Nitrogen per 1000 sq ft.

Slow-Release Nitrogen Percentage: 66.67 %

This is the pounds of fertilizer you need in order to apply 1 pound of Nitrogen per 1000 sq ft.

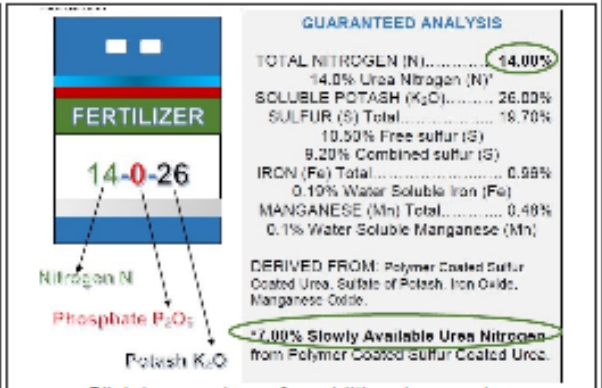
Fertilizer per 1,000 sq ft: 6.7 lbs

Calculate length x width or try to visualize how many parking spaces or volleyball courts would fill your yard. A parking space is about 100 square feet and half a volley ball court is 1000 square feet.

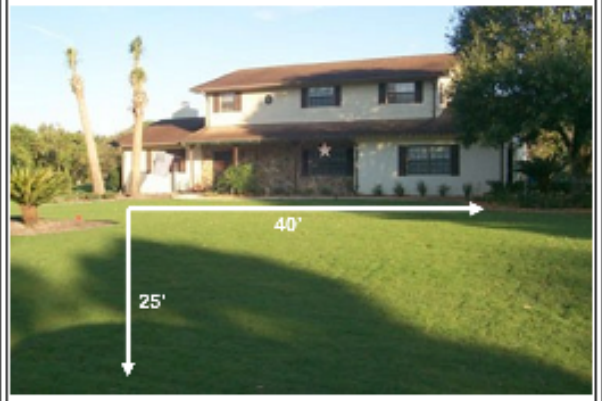
Enter sq ft of yard: 1600 sq ft

This is how many pounds of fertilizer you need for your yard. Measure out the pounds with a scale or take the portion of fertilizer you need based on how many pounds are in one bag.

Amount of Fertilizer to apply: 11 lbs



Click Image above for additional examples.



What If You Have Reclaimed Water?

Reclaimed water reuses **waste water** from the water treatment plant back into the landscape

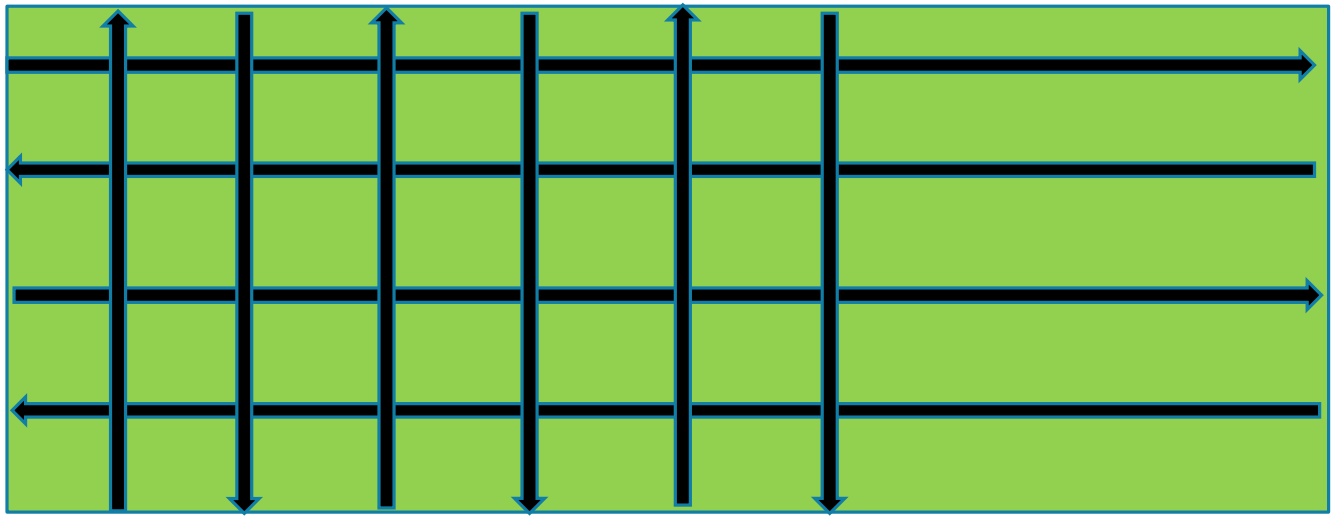
DO NOT DRINK. Look for signage.

Levels of nitrogen and phosphorus change depending on treatment plant and time of year

You need less fertilizer depending on your watering, your turf, and the nitrogen levels

Indicated by **Purple** signs and pipes

Apply Fertilizer Evenly



Take half of the fertilizer you need and place it in the spreader

Walk at a steady pace in vertical rows about 4 ft apart

When you run out of fertilizer, stop

Take the remaining fertilizer and walk in horizontal rows, walking faster or slower to use the remaining fertilizer

	LESCO® Spreader	PermaGreen	LT Rich/Spyker	Vicon/LESCO® Pendulum	Lely	Anderson's AccuPro	Anderson's SR-2000	Craftsman	Cyclone	Earthway	Ortho	Scott's AccuGreen 1000	Scott's AccuGreen 3000	Scott's EasyGreen	Scott's EdgeGuard DLX	Scott's EdgeGuard Mini	Scott's R8-A	Scott's SpeedyGreen 1000	Scott's SpeedyGreen 2000	Scott's SpeedyGreen 3000	Spyker	Vigoro 4300
SGN 240 STANDARD	11	11	3	16	3	K	K	—	3	13	—	—	—	—	—	—	H ½	—	—	—	3	4 ½
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	15	15	4 ¼	28	4 ¼	M ¼	M ¼	3	4 ¼	15 ½	3	8	8	26 ½	6	6	J ½	6	7	6	4 ¼	6 ½
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	20	20	5	38	5 ¼	P ¼	P ¼	—	5	20	—	—	—	—	—	—	M	—	—	—	5	—
	21	21	5	40	5 ½	P ¾	P ¾	—	5	20 ¾	—	—	—	—	—	—	M ½	—	—	—	5	—
	22	22	5 ¼	42	5 ¾	Q ¼	Q ¼	—	5 ¼	21 ½	—	—	—	—	—	—	N	—	—	—	5 ¼	—
	23	23	5 ¼	44	6	Q ¾	Q ¾	—	5 ¼	22	—	—	—	—	—	—	N ½	—	—	—	5 ¼	—
	24	24	5 ½	46	6 ½	R	R	—	5 ½	23	—	—	—	—	—	—	O	—	—	—	5 ½	—

Calibrate Fertilizer Spreader

Applying Fertilizer

Apply ¼” of water after spreading fertilizer

Keep Fertilizer Where It Belongs!

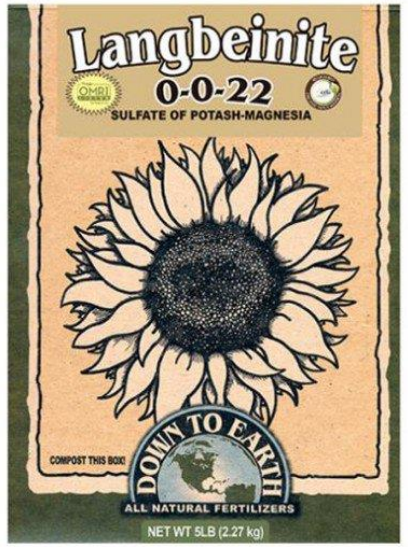
Use a **deflector shield** near water, sidewalks, etc.

Leave at least a 15’-free maintenance zone next to waterfront

Image Courtesy UF / IFAS Extension FYN Program

Summer Blends

- NITROGEN AND PHOSPHORUS FREE
- CAN BE APPLIED ANYTIME
- SHOULD BE BASED ON SOIL TEST
- IRON ENHANCES COLOR
- MANGANESE ENHANCES DISEASE RESISTANCE
- POTASSIUM IMPROVES OVERALL PLANT HEALTH
- LIME CORRECTS ACIDIC SOIL
- COMPOST CAN BE USED AT ANY TIME



Summary

N and P are pollutants in waterbodies

Soil testing is the first step to fertilizing correctly

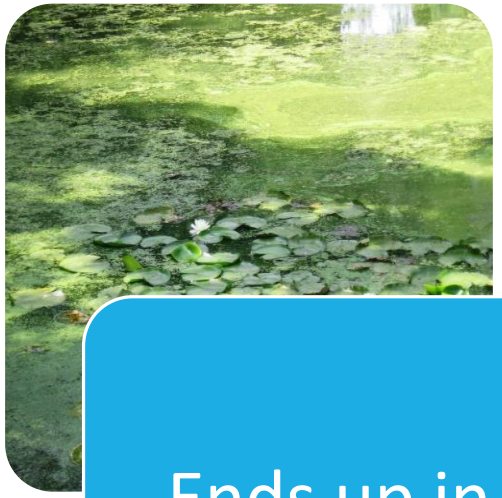
Apply a maximum of 1 lb. of N/1000ft^2/application

Water in the fertilizer ¼” to prevent leaching

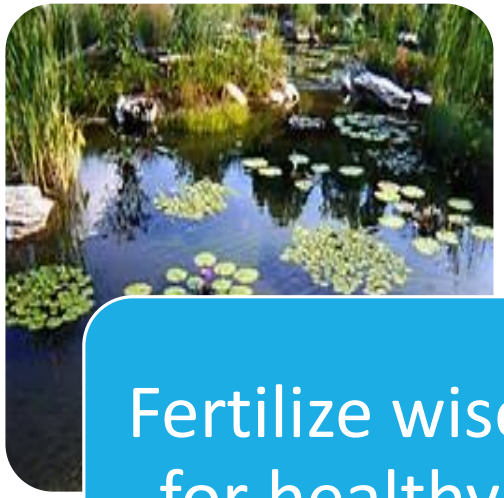
Keep the fertilizer and grass clippings on the lawn

We all have to protect our waterways

What happens in our yards…



Ends up in our water



Fertilize wise for healthy grass and clean water

The new fertilizer ordinance instructs when, with what, and how much to fertilize

Stormdrain Marking & LAKEWATCH

Protects water quality

Increases public awareness

- Preventative and proactive

Contributes to understanding of watershed

Citizen Science

Florida
LAKEWATCH
CITIZEN SCIENCE SINCE 1986

Landscape Design Class

- Free!
- July 31st at 2pm
- Team taught by a professional Landscape Architect
- Bring your home survey to make a REAL PLAN

Thank you! Any Questions? Let's try it!

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