HERNANDO COUNTY FERTILIZER

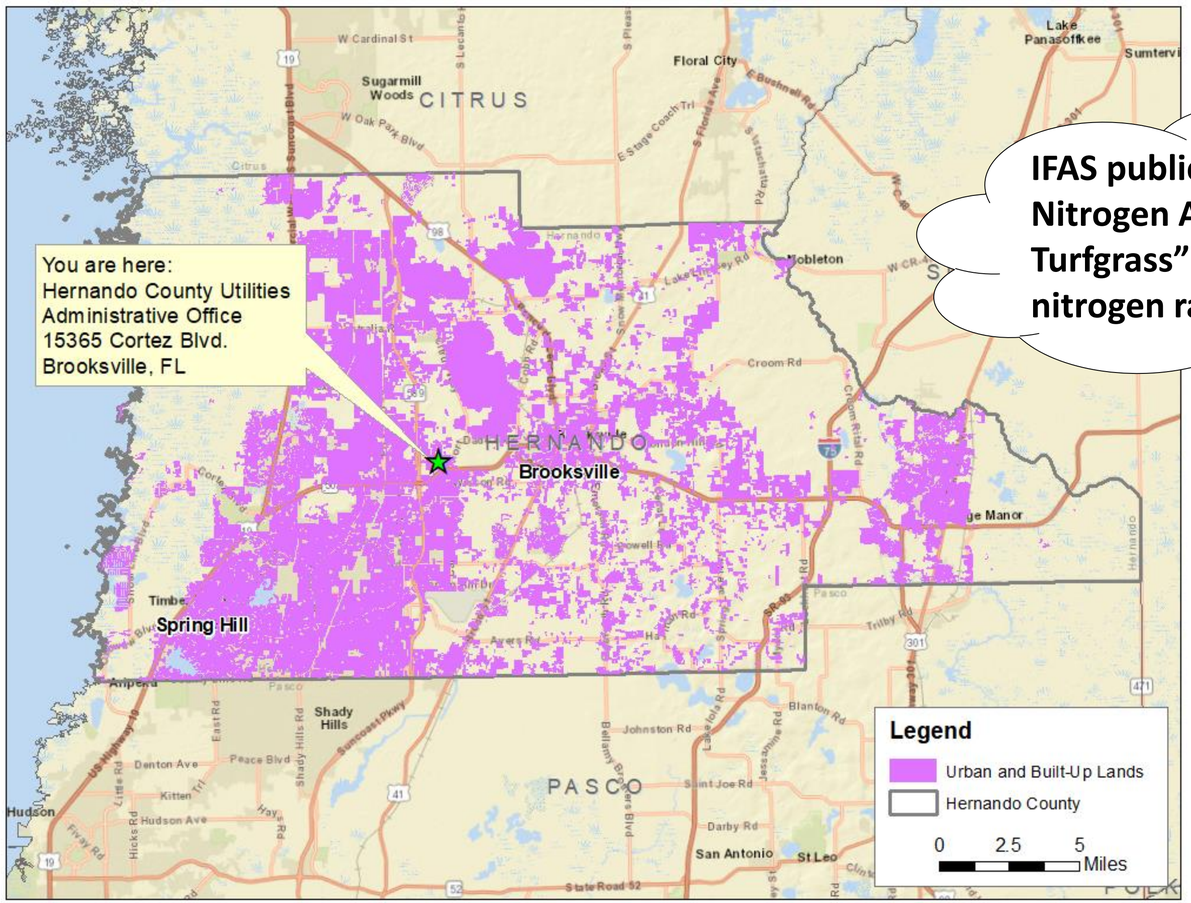
May 02, 2023

WHY?

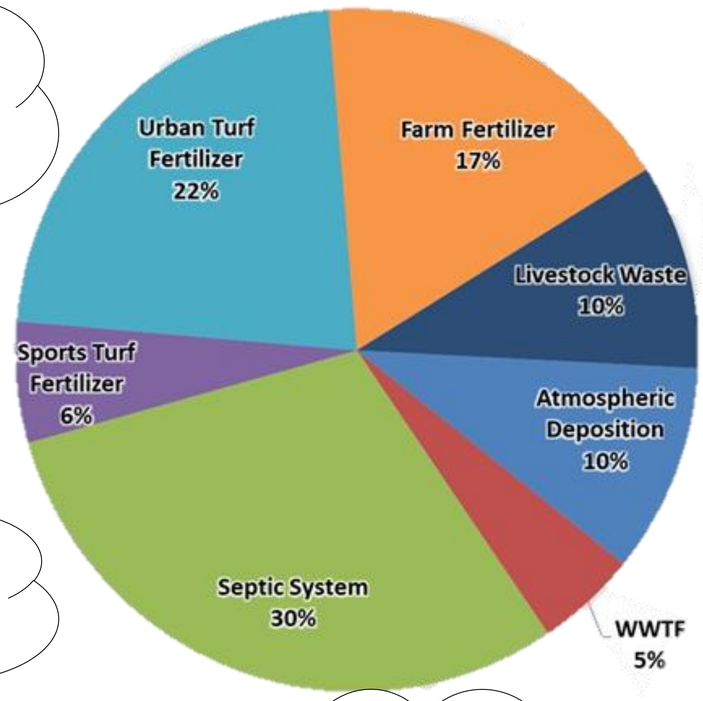
Impaired Waterbodies

- **Studies conducted by the SWFWMD and FDEP have determined that one of the primary causes of water quality issues in Weeki Wachee Springshed comes from inappropriate fertilizer use.[2]**
- **FDEP assumes 20% leaching of nitrogen from lawn fertilizers. [4]**
- **In Florida, water quality issues are among the most important environmental concerns, and preferences for iconic, lush, green landscapes have been associated with overuse of inputs such as water and fertilizer (Kumar Chaudhary et al. 2017).**

Fertilizer applied to turfgrass can also have impacts on water quality through runoff of the fertilizer itself. [1]



IFAS publication "Fate of Nitrogen Applied to Florida Turfgrass" reports leaching of nitrogen ranges from 0-55%. [3]



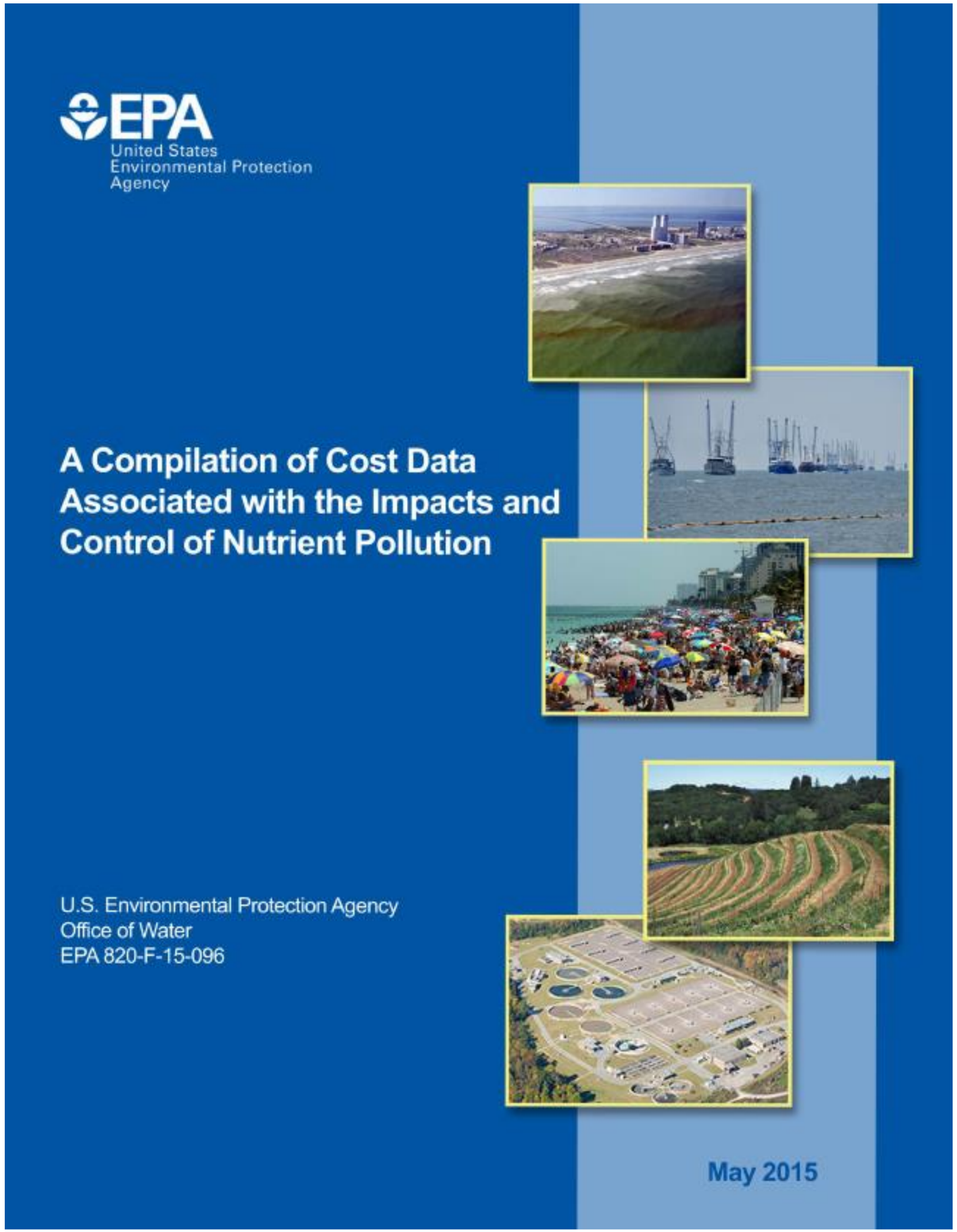
Based on the Nitrogen Source Inventory Loading Tool and BMAP, urban turf fertilizer contributes 22% of nitrogen loading in the Weeki Wachee Springshed. [4]

1- De la Vega, E. L., & Ryan, J. (2016). Analysis of nutrients and chlorophyll relative to the 2008 fertilizer ordinance in Lee County, Florida. Florida Scientist,
2- https://www.hernandocounty.us/Home/Components/News/News/1707/274?selamenityid=2
3- Shaddox, T.W. and J.B. Unruh. 2018. The Fate of Nitrogen Applied to Florida Turfgrass. ENH1282, UF/IFAS Extension.
4- FDEP. 2018. Weeki Wachee Basin Management Action Plan.

Cost of Nutrient Pollution Impacts and Treatment

Property Values

- Home values near lakes in Orange County, Florida: 17% increase in nutrient pollution decreased property values by $4,000 to $12,000
- Home values near St. Lucie River, St. Lucie Estuary, and Indian River Lagoon: 1% increase in water clarity increased property values by $2,000 to $11,000



Cost of Nutrient Pollution Impacts and Treatment

Tourism and Economic Losses

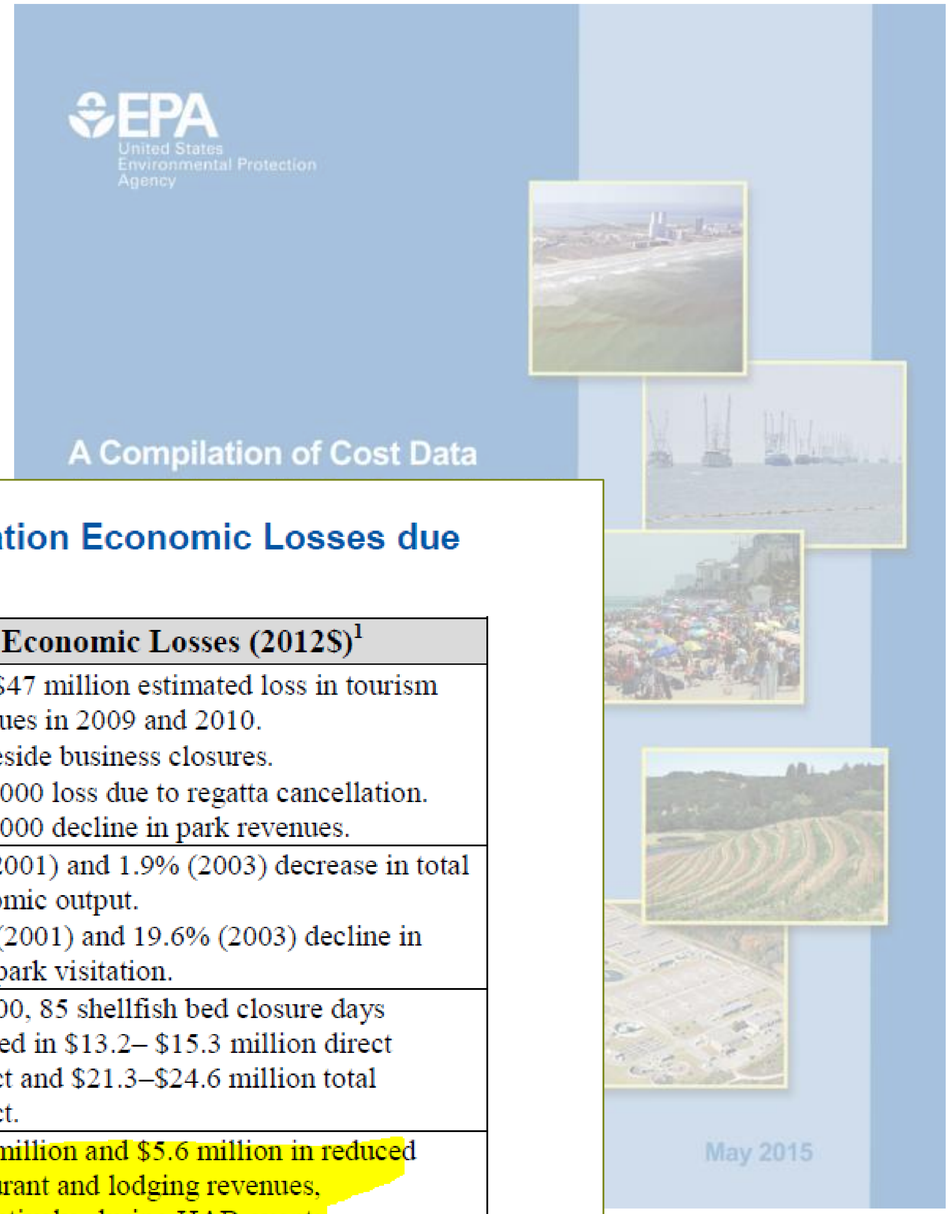


Table III-1. Examples of Estimated Tourism and Recreation Economic Losses due to HABs

Study	State	Waters	Economic Losses (2012$)[1]
Davenport and Drake (2011); Davenport et al. (2010)	OH	Grand Lake St. Marys	• $37–$47 million estimated loss in tourism revenues in 2009 and 2010. • 5 lakeside business closures. • $632,000 loss due to regatta cancellation. $263,000 decline in park revenues.
Oh and Ditton (2005)	TX	Possum Kingdom Lake	• 5% (2001) and 1.9% (2003) decrease in total economic output. • 57% (2001) and 19.6% (2003) decline in state park visitation.
Evans and Jones (2001)	TX	Galveston Bay	• In 2000, 85 shellfish bed closure days resulted in $13.2– $15.3 million direct impact and $21.3–$24.6 million total impact.
Larkin and Adams (2007)	FL	Ft Walton Beach and Destin areas	• $4.2 million and $5.6 million in reduced restaurant and lodging revenues, respectively, during HAB events.
Morgan et al. (2009)	FL	Southwest coast	• Reduced daily restaurant sales of $1,202 to $4,390 (13.7%–15.3%) during HAB events.
Dyson and Huppert (2010)	WA	Beaches in Grays Harbor and Pacific Counties	• Typical closure (2–5 days) results in $2.23 million in lost labor income and $6.13 million in sales impacts due to decreased visitation.

HABs = harmful algal blooms

[1] *All economic losses updated to 2012$ using the Consumer Price Index.*

Cost of Nutrient Pollution Impacts and Treatment

Lawn fertilization programs compared to other nutrient BMPs

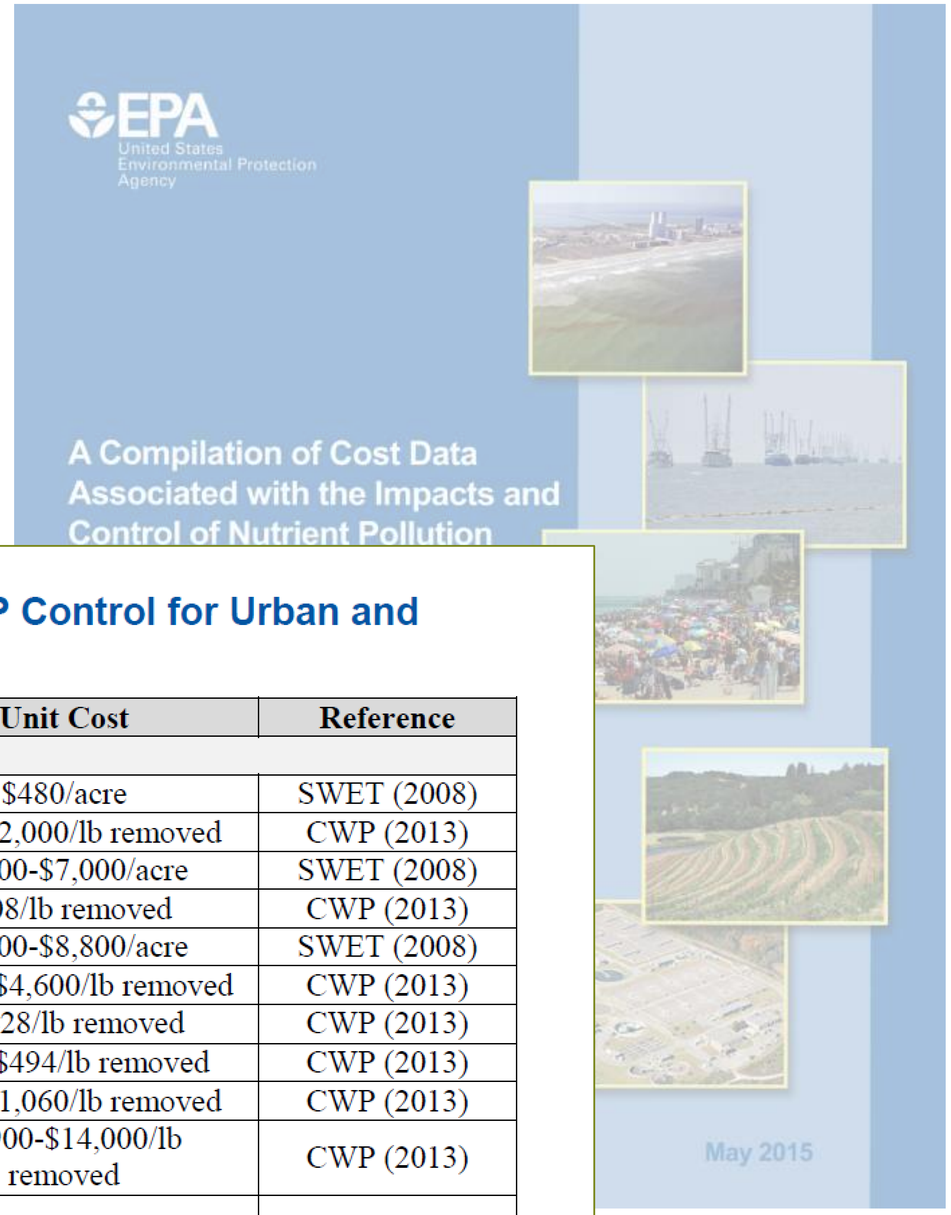


Table IV-6. BMP Cost and Performance for TN and TP Control for Urban and Residential Runoff

Description		Performance	Unit Cost	Reference
Total Nitrogen				
Structural BMPs	Baffle Boxes	15% reduction	$480/acre	SWET (2008)
	Bioretention Units	--	$338-$2,000/lb removed	CWP (2013)
	Bioswales	15-25% reduction	$3,500-$7,000/acre	SWET (2008)
		--	$308/lb removed	CWP (2013)
	Detention Basins	15-20% reduction	$4,400-$8,800/acre	SWET (2008)
		--	$1,100-$4,600/lb removed	CWP (2013)
	Impervious Surfaces	--	$2,428/lb removed	CWP (2013)
	Infiltration Basin	--	$486-$494/lb removed	CWP (2013)
	Media Filtration	--	$975-$1,060/lb removed	CWP (2013)
	Porous Pavement	--	$1,900-$14,000/lb removed	CWP (2013)
Non-Structural BMPs	Illicit Discharge Control Program	--	$8.82-$17.62/lb removed	CWP (2013)
	Lawn Fertilization Programs	15-30% reduction	<$1-$17/acre	SWET (2008)
	Pet Waste Programs	--	$0.43/lb removed	CWP (2013)
	Street Sweeping	--	$3,500-$14,600/lb removed	CWP (2013)
		2% reduction	$22/acre	SWET (2008)

WHEN?

No application of fertilizer containing nitrogen or phosphorus from **June 1 through September 30** and **December 1 through March 31**

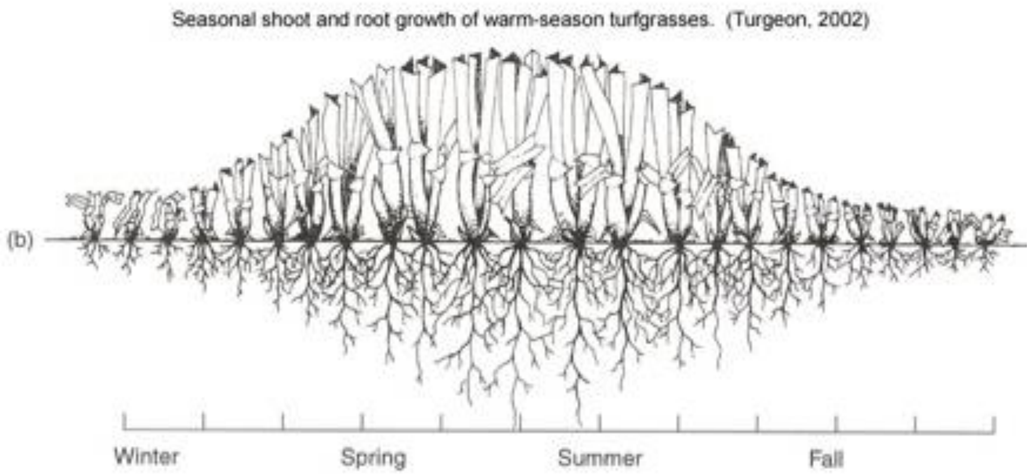
Why Support a Winter Black Out?

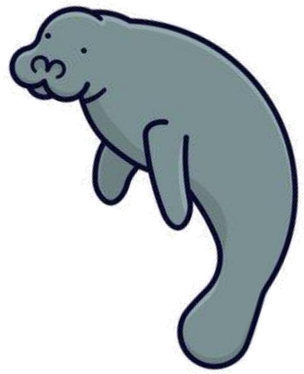
- N application to turfgrasses is generally not needed in winter months due to the grasses entering a state of dormancy (or at least decreased growth).
- Smidt et al (2022) found fertilizer ordinances favorably impacted lacustrine water quality, and winter/dry season fertilizer bans had the greatest effect across all water quality metrics.
- While lawns naturally go dormant, turning brown in the process, during the winter in Florida, some homeowners will overwater and over fertilize as a way to prevent this.

Your last fertilizer application should be around mid-October for central Florida- *Homeowner BMPs for Home and Lawn- UF IFAS 2018*

Decreased plant growth and root density in winter (cooler temperatures, less growth, less light)

It is important to not fertilize when grasses are not growing, as this can increase the possibility of nutrients leaching through the soil or running off





Smidt, S., D. Aviles, E. Belshe, A. Reisinger. 2022. Impacts of residential fertilizer ordinances on Florida lacustrine water quality. Limnology and Oceanography Letters

Trenholm, Laurie E. 2008. "Homeowner Best Management Practices for the Home Lawn: ENH979/EP236, Rev. 01/2018". EDIS 2018

Persaud, A., Alsharif, K., Monaghan, P., Akiwumi, F., Morera, M. C., & Ott, E. (2016). Landscaping practices, community perceptions, and social indicators for stormwater nonpoint source pollution management. Sustainable cities and society, 27, 377-385.

WHEN?

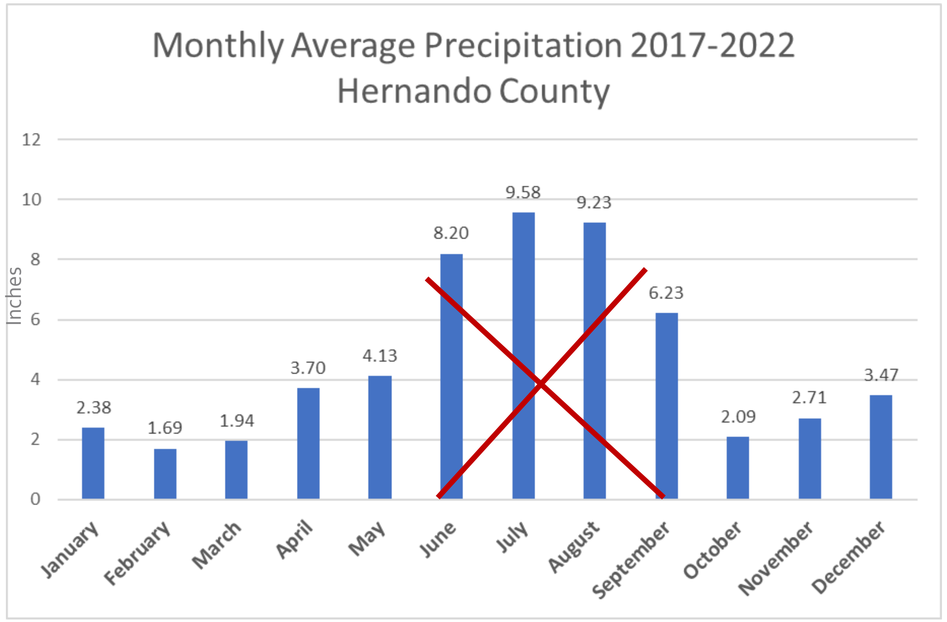
No application of fertilizer containing nitrogen or phosphorus from **June 1 through September 30** and **December 1 through March 31**

Why Support a Rainy Season Black Out?

- Higher precipitation can mobilize N and allow it to leave lawns via leaching or runoff.
- Losses are most likely when fertilizer is applied just before or during heavy rainfall (Soldat and Petrovi 2008).
- Given the inability to predict future storm patterns and rain totals, **the most certain way to protect against run-off is to not allow fertilizing during the summer rainy season.**
- Krimsky et al (2021) performed stable isotope study of nitrate from lawn runoff in Florida between the wet and dry seasons. This study found that during the dry season the likely average percent contribution of inorganic fertilizers was 44.2% but dropped to 30.8% during the wet season, when a fertilizer restriction was in place.

Increased rainfall June – September increases chances for leaching and runoff

A summer restriction period would reduce the amount of N available to be mobilized to surface and ground waters



For much of Florida, including the Tampa Bay region, summer is not the only growth period for turf grasses and landscape vegetation. Plants are also active in spring and fall. SWFWMD (2009) recognized that the prudent application of fertilizer bracketing the rainy season is a reasonable alternative to summer fertilization

Krimsky, L. S., Lusk, M. G., Abeels, H., & Seals, L. 2021. Sources and concentrations of nutrients in surface runoff from waterfront homes with different landscape practices. Science of The Total Environme

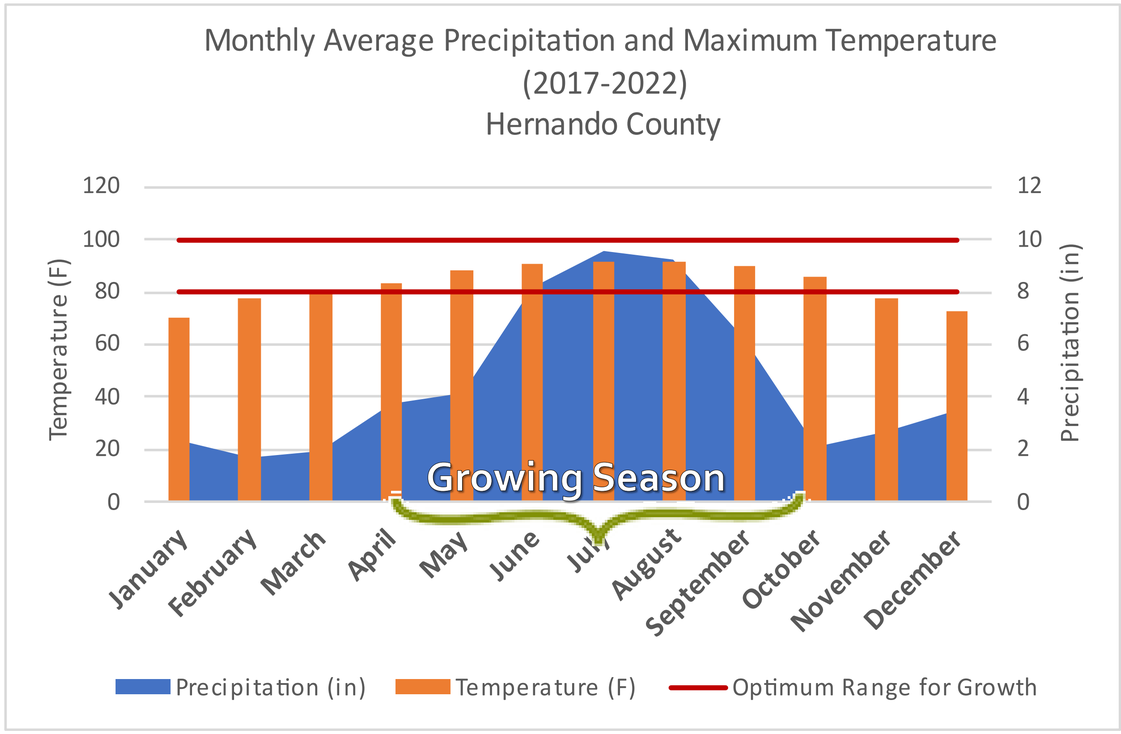
Soldat, D. J., and A. M. Petrovic. 2008. The fate and transport of phosphorus in turfgrass ecosystems. Crop Science 48: 2051–2065

Southwest Florida Water Management District. 2009. Fertilizer Facts. Brooksville, FL.

WHEN?

Why Support a Rainy Season Black Out?

- St. Augustine grass grows best in the warmth of spring and summer, when high temperatures are normally 80-100 °F.[1]
- Utilize slow-release fertilizer products to meet nutrient needs and support growth of healthy vegetation through the growing months (May to October) but adhere to the fertilizer black out between June and September.
- Allowing fertilizer application in May and (early) October will still allow at least two applications during the active growing season.
- The rationale for this provision to restrict the application of N and P containing fertilizers during this summer period is that more frequent rains will increase the likelihood of higher levels of soil saturation, runoff, and leachate carrying nutrients to surface water and groundwater. This is reasonable, in that over 50% of Hernando County's annual rains occur during this summer period (SWFWMD, 2023).



"If you are in an area with a restricted application period, fertilize with a long-term controlled release product at the end of May. The grass will receive low doses of nitrogen over a period of 3 to 4 months, depending on the product used. When the restrictive period is over, fertilize again with a product that has a more soluble nitrogen component, such as sulfur-coated urea. This will reduce the potential for the fertilizer to release nitrogen during the winter months when the ability to take up the nutrients is reduced." -Trenholm., L.E. Homeowner Best Management Practices for the Home Lawn. ENH979, UF/IFAS Extension.

1-Lu, H., Jessup, K.E., Xue, Q. & Cherry, R.H. (2013) Morphological and Physiological Responses of St. Augustine Grass Cultivars to Different Levels of Soil Moisture, Journal of Crop Improvement, 27:3, 291-308
2- Southwest Florida Water Management District. 2023. Hydrologic Data

WHERE?

Apply Fertilizer to Areas Away from Waterbodies or Wetlands

Fertilizer exclusion zone- Waterfront property or 100ft set back from waterbody, whichever is less.

Buffer strips reduced runoff, compared with no buffer strips. Dense turf vegetation reduces runoff by creating pathways that reduce runoff rate thus enhancing infiltration. Water can be filtered of its sediment and nutrient load by turf shoots and roots- **Hochmuth et al. 2011. UF/IFAS SL283**

It is widely recognized by professional landscapers and researchers alike that maintaining a non-fertilized strip along water bodies is a good practice for protecting water. No-mow zones also help absorb nutrients present in runoff as well as add a margin for application error -**Hillsborough County Environmental Services Division. 2010. Technical Support Document for Proposed Local Fertilizer Rule**

"It's important to designate a 'maintenance-free zone' of at least 10 feet between your landscape and the riparian zone. This area helps to protect the water from runoff. Don't mow, fertilize, or apply pesticides in the maintenance-free zone. Select plants that will do well without fertilization or irrigation after establishment." - **UF/IFAS. 2015. Florida Yards and Neighborhoods Handbook**

WHAT?

Florida-Friendly Blackout Compliant Fertilizer

Restricted Season

- Fertilizers containing nitrogen or phosphorus are not permitted between June 1 and September 30 or December 1 and March 31
- Fruit and vegetable gardens can still be fertilized
- Summer fertilizer blends can still be applied

"Fertilization with N in the summer is not always desirable since this often encourages disease and insect problems. …the addition of iron (Fe) to these grasses provides the desirable dark green color, but does not stimulate excessive grass growth which follows N fertilization."

Shaddox, T. (2017). SL21/LH014

Summer Fertilizer Blends

- Must be 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**

WHAT?

Choosing Ordinance Compliant Fertilizers

If using fertilizer during the allowed application period….

- Only choose fertilizer that has at least 50% Slow-Release Nitrogen
- Apply zero phosphorus unless a soil test shows a deficiency

Many Florida soils are high in plant-available phosphorus and your lawn may not require any additional phosphorus in the form of fertilizer- **Trenholm, L.E., Cisar, J.L. and J.B. Unruh. 2006. St. Augustine Grass for Florida Loawns . ENH5**

The use of controlled-release fertilizer in the summer helps minimize the losses of N because only very small amounts of N are released from the fertilizer at any one time (typically based on temperature and moisture) -**Sartain, J.B. 2007. General Recommendations for Fertilization of Turfgrasses on Florida Soils, IFAS Publication SL21**

Slow-release N sources may be applied at higher rates than soluble N sources so long as the single application rate and total annual N applied do not exceed UF/IFAS recommendations- **Shaddox, T.W. and J.B. Unruh. 2018.**

To this end, slow-release N fertilizers can increase N uptake by as much as 300% compared with soluble N sources- **Shaddox, T.W. and J.B. Unruh. 2018. The Fate of Nitrogen Applied to Florida Turfgrass. ENH1282**

Slow release products are capable of meeting the nutritional needs of turf grasses through 6 months. If slow release nitrogen (SRN) is used in the spring months then lawns should be adequately fertilized during the summer months**- Sartain, J. B. 2008. Comparative influence of N source on N leaching and St. Augustine grass quality, growth and N uptake. Soil and Crop Sci. Soc. Florida Proc. 67: 43–47.**

Florida-Friendly Landscaping Article

- Draft Code that mirrors the State's Florida Friendly Landscaping legislation (F.S. 373.185) stating that a deed restriction or covenant may not prohibit or be enforced so as to prohibit any property owner from implementing Florida Friendly Landscaping on his or her land
- Provides assistance to homeowners in making sustainable changes in their landscapes
- Prohibits Homeowner Associations from requiring irrigation and turf mandates in HOA codes, covenants, and restrictions

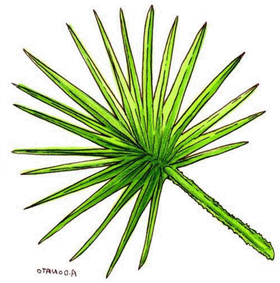
If you're adhering to Florida-friendly landscaping principles, then you're in the clear by state law. By encouraging the transformation of conventional landscapes to Florida-Friendly landscapes, HOAs and homeowners can conserve water, protect the environment, and allow a wide range of aesthetic choices.

Florida statute 720.3075

"Homeowners' association documents, including declarations of covenants, articles of incorporation, or bylaws, may not prohibit or be enforced so as to prohibit any property owner from implementing Florida-friendly landscaping, as defined in s. 373.185, on his or her land or create any requirement or limitation in conflict with any provision of part II of chapter 373 or a water shortage order, other order, consumptive use permit, or rule adopted or issued pursuant to part II of chapter 373."

Florida-Friendly Landscaping

New lawn models allow opportunities for greater personal creativity: planting with food, flowering plants, herbs, or wildlife habitat (Ponsford, 2020). **Complete turf replacement may be daunting so the goal may have to be gradual reductions in turf areas.**



If the natural terrain and conditions are correct for the particular plant, then that plant will require less water, less fertilizer, less pesticides, and generally be healthier and look better. In other words, **don't plant something that likes wet soil on a sandy dune**. Florida native plants are encouraged, but not required.

"Florida-friendly landscaping" means quality landscapes that conserve water, protect the environment**, are adaptable to local conditions, and are drought tolerant**. The principles of such landscaping include planting the right plant in the right place, efficient watering, appropriate fertilization, mulching, attraction of wildlife, responsible management of yard pests, recycling yard waste, reduction of storm water runoff, and waterfront protection.

Florida Native and Resilient Plants with the Greatest Potential for Increased Use and Most Widespread Familiarity and Current Use.

Grasses	Shade Trees	Herbaceous Perennials	Understory Trees	Shrubs	Ground Cover	Palms
Muhly Grass	Baldcypress	Scarlet Sage	Yaupon Holly	Simpsons Stopper	St. John's Wort	Coontie Palm
Fakahatchee Grass	Summer Red Maple	Blue Porterweed	Eastern Redcedar	Walter's Viburnum	Swamp Twinflower	Saw Palmetto
Purple Lovegrass	Shumard Oak	Lanceleaf Tickseed	Fringetree	Firebush	Sunshine Mimosa	Dwarf Palmetto
Sand Cordgrass	Miss Chloe Southern Magnolia	Leavenworth's Tickseed	Chickasaw Plum	Oakleaf Hydrangea	Frogfruit	Paurotis Palm
Elliot's Lovegrass	Longleaf Pine	Blue-eyed Grass	Flatwoods Plum	Wild Coffee	Oblongleaf Twinflower	Cardboard Plant
Little Bluestem	Winged Elm	Starry Rosinflower	Sweetbay Magnolia	American Beautyberry	Creeping Sage	Scrub Palmetto
Sea Oats	Sand Live Oak	Carolina Wild Petunia	Southern Waxmyrtle	Anise	Common Violet	Lady Palm
Lopsided Indiangrass	Bluff Oak	Lyreleaf Sage	Dahoon Holly	Darrow's Blueberry	Beach Verbena	Needle Palm
Splitbeard Bluestem	Tuliptree	-	Eastern Redbud	White Stopper	Narrowleaf Silkgrass	-
Wiregrass	Turkey Oak	-	Florida Privet	Sparkleberry	Partridge Berry	-

Ponsford, M. 2020 (April 17). Designing an end to a toxic American obsession: The Lawn. CNN Style. Retrieved from https://www.cnn.com/style/article/lawns-american-yard-us/index.html

Other Ordinances

County	Seasonal restriction	At least 50% slow release nitrogen	No phosphorus without a soil test	Fertilizer-free exclusion zone from water body	Voluntary low maintenance zone	Applies to commercial and institutional applicators	Additional professional training requirements
ALACHUA	July 1 - Feb 28	Yes	Yes	10		Yes	Not specified
BREVARD	June 1 - Sept 30	Yes	Yes	15	15	Yes	All commercial applicator employees and supervisors are required to complete BMP training.
BROWARD	NA	Not specified	Not specified	Not specified	Not specified	Yes	Not specified
CHARLOTTE	June 1 - Sept 30	Yes	Yes	10 (3 with deflector)	Not specified	Yes	Vehicle decal required.
CITRUS	Nov 1 - Mar 31	No, 33%	Not specified	25	Not specified	No	All professional applicators (including golf courses) must complete BMP training.
COLLIER	NA	Yes	Yes	10	Not specified	Yes	Not specified
COLUMBIA	NA	Not specified	Not specified	10 (3 with deflector)	Not specified	Yes	Not specified
DUVAL	NA	Not specified	Not specified	6	Not specified	Yes	Not specified
ESCAMBIA	NA	Not specified	Not specified	10	Not specified	Yes	Not specified
GADSDSEN	NA	Not specified	Not specified	10	Not specified	Yes	Not specified
HENDRY	NA	Not specified	Not specified	10	Not specified	Yes	Not specified
HERNANDO	Jan 1 - Mar 31	Not specified	Not specified	10	Not specified	No	Not specified
HILLSBOROUGH	June 1 - Sept 30	Yes	Yes	10	6	Yes	All commercial applicator employees and supervisors are required to complete BMP training. Vehicle decal required.
INDIAN RIVER	June 1 - Sept 30	Yes	Yes	10	Not specified	Yes	Not specified
LAKE	June 1 - Sept 30	Yes	Not specified	15	Not specified	Yes	Not specified
LEE	June 1 - Sept 30	Yes	Special rates defined	10	6	Yes	Vehicle decal required
LEON	"winter months"	Yes	Yes	15	15	Yes	Professional applicator supervisors must complete BMP training and re-certify with County program every 4 years.
MANATEE	June 1 - Sept 30	Yes	Yes	10	Not specified	Yes	Supervisors must complete BMP training. Employees must complete training (at a lower level). Vehicle decal required.

Other Ordinances, Continued

County	Seasonal restriction	At least 50% slow release nitrogen	No phosphorus without a soil test	Fertilizer-free exclusion zone from water body	Voluntary low maintenance zone	Applies to commercial and institutional applicators	Additional professional training requirements
MARION	NA	No, special rates defined	Special rates defined	75 ft of river/spring 100ft of sinkhole/karst feature 15ft every other waterbody	Not specified	Yes	Must complete BMP training or county approved CEU. Vehicle decal required.
MARTIN	June 1 - Sept 30	Yes	Yes	25	Not specified	Yes	All applicators (including golf courses) must ensure at least one employee is BMP certified. County conducts all training.
MIAMI-DADE	May 15 - Oct 31	Yes, 65%	Yes	20	10	Yes	All applicators must complete training, but only commercial applicators are required to be BMP certified.
MONROE	May 15 - Oct 31	Yes, 65%	Yes	20	10	Yes	All applicators must complete BMP training and golf courses must complete golf course BMP training.
ORANGE	June 1 - Sept 30	Yes, 65%	Yes	25	10	Yes	Any individual applying fertilizer must take BMP training. Vehicle decal required.
OSCEOLA	NA	Not specified	Not specified	10	Not specified	Yes	Not specified
PALM BEACH	NA	Not specified	Not specified	10	Not specified	Yes	Not specified
PASCO	NA	Not specified	Not specified	10	Not specified	Yes	Not specified
PINELLAS	June 1 - Sept 30	No, special rates defined	Yes	10	6	Yes	County has their own BMP training program (for site supervisors and managers). Training for employees is required, but less stringent. Vehicle decal required.
POLK	NA	Not specified	Not specified	10	Not specified	Yes	Not specified
SARASOTA	June 1 - Sept 30	Yes	Special rates defined	10	Not specified	Yes	Not specified
SEMINOLE	June 1 - Sept 30	Yes, 65%	Yes	15	10	Yes	Not specified
ST. JOHNS	NA	Not specified	Not specified	10	Not specified	Yes	Not specified
ST. LUCIE	June 1 - Sept 30	Yes	Yes	10	Not specified	Yes	Not specified
SUWANNEE	NA	Not specified	Not specified	10	Not specified	Yes	Not specified
VOLUSIA	June 1 - Sept 30	Yes	Yes	15	Not specified	Yes	Not specified
WAKULLA	NA	Not specified	Not specified	10 (3 with deflector)	Not specified	Yes	Not specified

WHO?

Anyone Applying Fertilizer Within Unincorporated Areas of Hernando County

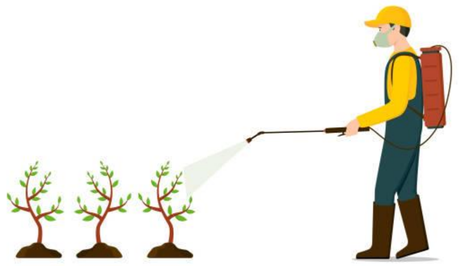
- A study conducted in the Wekiva River watershed (FDEP/SJRWMD 2010) suggests that **commercial landscape/lawn care companies do contribute substantial amounts of N to surface waters**
- According to Market Insight Research, more than three-quarters of **Tampa Bay residents** surveyed indicated their lawn had been treated with fertilizer in the past twelve months and of these **almost half had it applied by a lawn care service**
    - Fertilizer is applied monthly according to some who use a lawn service
- 79% of Manatee County residents surveyed use a landscape contractor to apply fertilizer
- Data clearly demonstrate that summer rainfall patterns make it difficult for even experts to determine in advance whether a specific location in the County will receive significant rains within the following 24 to 48 hours

Exempting commercial applicators from the fertilizer restrictions would allow a majority of those applying fertilizer to be exempt from the restrictions, thereby minimizing the environmental gains

1- Florida Department of Environmental Protection/St. John's River Water Management District (FDEP/SJRWMD). 2010. Final Report Wekiva River Basin Nitrate Sourcing Study. Palatka and Tallahassee, FL.
2- Market Insight. 2009. Analysis of Focus Group Research: TBEP's Fertilizer Education Campaign. Report for the Tampa Bay Estuary Program.
3-Persaud, A., Alsharif, K., Monaghan, P., Akiwumi, F., Morera, M. C., & Ott, E. (2016). Landscaping practices, community perceptions, and social indicators for stormwater nonpoint source pollution management. Sustainable cities and society, 27, 377-385.

WHO?

- Residential Fertilizer Study (Souto et al 2007-2011) collected subdivision, regional, and statewide, consumer fertilizer information demonstrating that:
  - Homeowners who applied fertilizer to the lawn themselves applied much less nitrogen (N) than the IFAS recommended rates on average [1]
  - Half of Florida's fertilized lawns are managed by homeowners who are following the seasonal restriction intuitively [1]
- **There is no evidence that the fertilizer industry has suffered as a result of more restrictive ordinances** [2] :
  - Once restrictive period ordinances began to pass in Florida, fertilizer manufacturers responded quickly to develop products that can be applied during the seasonal restriction (There are over 120 products available on the market) [2]
  - Florida-owned fertilizer companies benefitted most by capitalizing on new products that can be applied in Florida during the rainy season. These products include micronutrients such as iron, magnesium, and other beneficial plant needs, they just don't have N or P [2]
  - In response to the Pinellas and Hillsborough County ordinances, Tru-Green opened a new residential lawn care center in Tampa and hired 175 new workers to help support the new emerging market [2]



1- Souto, Leesa, "Landscaping Perceptions And Behaviors: Socio-ecological Drivers Of Nitrogen In The Residential Landscape" (2012). Electronic Theses and Dissertations. 2341.
2- Souto, Leesa. "Science to Support Fertilizer Controls." *Florida Today*, 24 Nov. 2013.

WHO?

- The GI-BMP certification is a one-day training (class and test) or an on-line module.
  - A passing grade is 75%, which means that the test taker can get the entire fertilizer module wrong and still pass the test.
- Regardless of training, professional applicators still cannot predict rain events.
  - How does the industry address the current Code that prohibits fertilizer application prior to 2 inches of rain in 24 hours?
- What is the premise upon which Hernando County's exemption for certified applicators from the restricted season application period is based?
- Hernando County is one of <u>two</u> Counties in Florida that have an exemption for commercial and institutional applicators.

Best Management Practices for
Protection of Water Resources by the Green Industries

Florida-Friendly Landscaping™ PROGRAM

Lessons Learned- Orange County

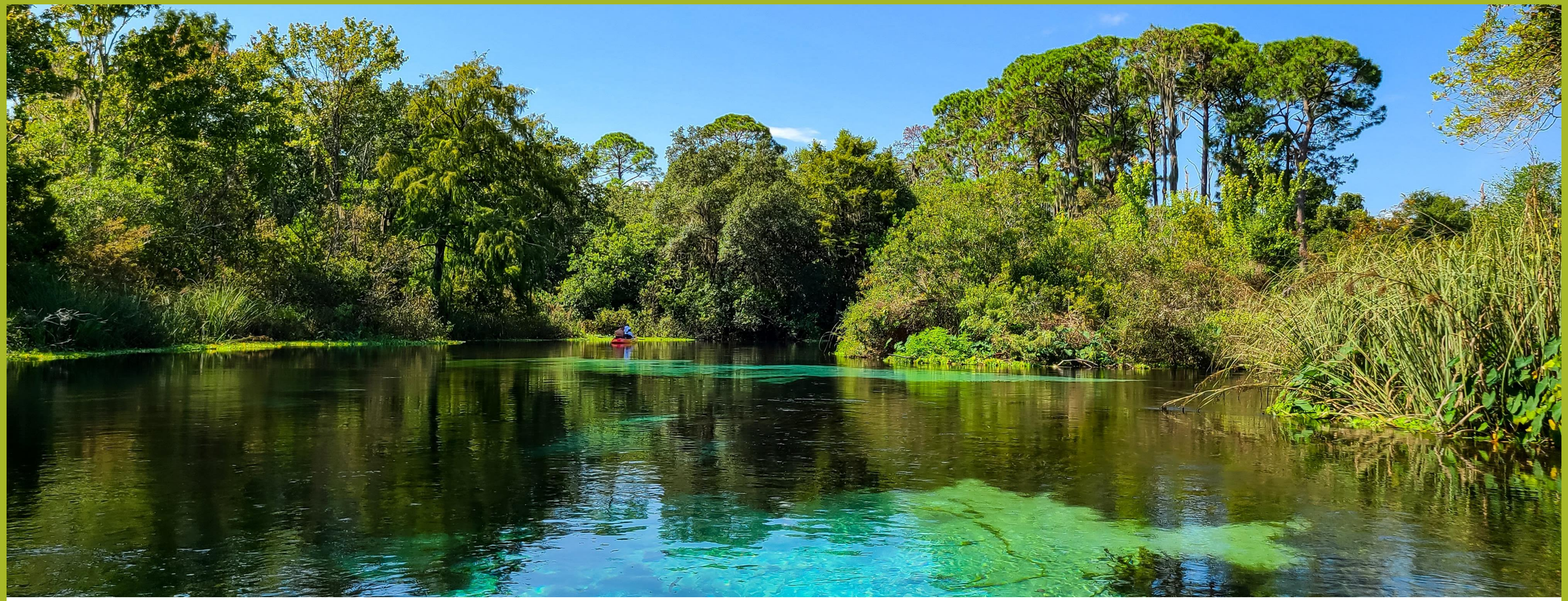
- 2008- FDEP identified fertilizer and septic tanks as highest nitrogen pollution sources to the Wekiva Basin.
- 2009- Orange County adopted initial Fertilizer Ordinance.
- 2010- Urban turf fertilizer (residential, and other) identified by contractor as 20% of nitrate loadings to the Wekiva Basin.
- 2015- State Model Ordinance updated.
- 2016- Florida Springs and Aquifer Protection Act required County to adopt State Model Fertilizer Ordinance Language by 2017.
- 2017- County Ordinance updated to comply with State Model Ordinance. The County also implemented an educational fertilizer campaign.
  - Ordinance included exemptions for trained and certified applicators.
  - BOCC directed County to complete a study to determine where nitrate was coming from.
- 2018- FDEP identifies urban turf fertilizer as 26% of nitrate loadings to the Wekiva Basin.
- 2021- Contractors for the County identified residential turf fertilizer as a significant contributor to groundwater nitrate within the springshed.
  - This evidence was sufficiently compelling for the Orange County BOCC to implement a revised fertilizer ordinance that restricts application of nitrogen-containing fertilizers during the rainy season, for ALL applicators (residential, commercial, and institutional).

<u>Takeaway</u>- Orange County had to spend millions of dollars on scientific studies to show that that limiting the application period for just residential homeowners was not leading to improvements in water quality, and that the majority of nitrate in the groundwater was still associated with urban turf fertilizer, likely from the continued application year-round from commercial and institutional applicators. An economically feasible way to reduce nutrient loads and meet regulatory criteria is to remove exemptions for commercial and institutional applicators.

Lumbard, L., Szafraniec, M., and Shah, N. 2021. Wekiva Springshed Groundwater Monitoring & Data Analysis Summary.Wood

Ordinance Options

	Current	Protective	Most Protective
Restricted Period	January - March	June - September	Winter and Summer
Slow Control N	Silent	50%	65%
Phosphorus	Silent	Reduced rate	Soil test required
Commercial Applicators	Exempt	Included	Included
GI-BMP Training	Training for single employee	Training for managers and supervisors	Training for all employed applicators
Exclusion Zone (ft)	10	20	Greater than 25



THANK YOU FOR PROTECTING OUR NATURAL RESOURCES!

Training Requirements

Sec. 28-514. Applicator training.

(a) All commercial applicators of fertilizer within Hernando County shall abide by and successfully complete the University of Florida IFAS "Florida-Friendly Best Management Practices for Protection of Water Resources by the Green Industries," training program or an approved equivalent. Successful completion shall be evidenced by issuance of a training certificate and a limited certification for urban landscape commercial fertilizer application to the applicator.

(b) All institutional applicators of fertilizer within Hernando County shall ensure **that at least one (1) employee has completed the training** program specified in subsection (a) of this section and received a training certificate. The employee or employees shall complete the training for the purpose of ensuring that fertilizer application practices are planned and carried out in compliance with this article and with Green Industry best management practices.

(Ord. No. 2013-34, § I, 11-12-13)

Sec. 28-515. Applicator licensing and certification.

(a) By January 1, 2014, all commercial fertilizer applicators within Hernando County shall have and carry in their possession at all times when applying fertilizer, a limited certification for urban landscape commercial fertilizer application or other approved evidence of certification by the Florida Department of Agriculture and Consumer Services as a commercial applicator per 5E-14.117(18) Florida Administrative Code.

(b) By January 1, 2014, **all institutional applicators shall be supervised on site during the application of fertilizer by at least one (1) institutional applicator** who shall have and carry in their possession at all times when applying fertilizer, a University of Florida IFAS "Florida-Friendly Best Management Practices for Protection of Water Resources by the Green Industries" training certificate.

(Ord. No. 2013-34, § I, 11-12-13)

Any institutional applicator that applies fertilizer within the county shall abide by and successfully complete the six-hour training and continuing education requirements in the Florida-Friendly Best Management Practices for Protection of Water Resources by the Green Industries, offered by the Florida Department of Environmental Protection through the UF/IFAS "Florida-Friendly Landscaping " program.

Professional applicators must submit proof of certification to Hernando County to receive an applicator decal and shall affix the decal provided to all vehicles used during fertilizer application.