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Heart Attack Signs?
Know the 4 Bodily Signs. Take The Simple Heart Test

Mayors ready to talk Miss. River in Washington D.C.
Published 12:12am Monday, March 24, 2014

NATCHEZ — Two Mississippi mayors will be in the nation's capital today to advocate for the well-being of the river they see as the nation's lifeblood.

The members of the Mississippi River Cities and Towns Initiative will meet today through Wednesday in Washington, D.C., and Natchez Mayor Budh Brown and Vidalia Mayor Hiram Copeland will be in attendance.

Vidalia Marketing Director Sheri Rabb and Port Director Wally Gittel will also be in attendance. Rabb helped with the organizing of the initiative's meeting, Copeland said.

The goal of this was to bring together all of the mayors on the Mississippi River, from the top to the bottom, to become a lobbying force for the river, not for the cities but for the river itself," Brown said.

"I got interested in it from this perspective, to bring to the forefront the needs of the

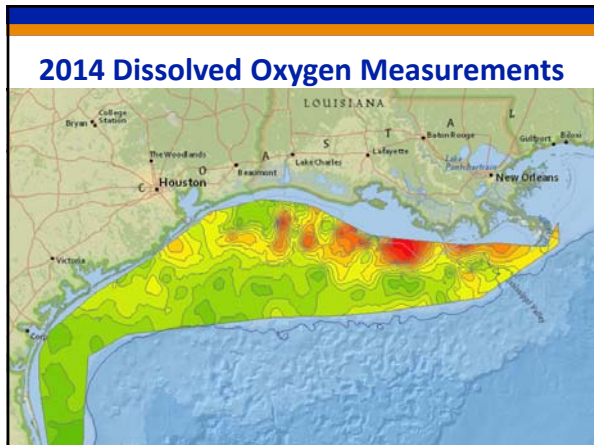
Watersheds

Watershed	Total Area
Atchafalaya	1,200,000 sq. miles
Arkansas	1,200,000 sq. miles
Bayou	200,000 sq. miles
Big Horn	200,000 sq. miles
Lower Mississippi	800,000 sq. miles
Upper Mississippi	1,200,000 sq. miles

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Frenzy Over New Diet Pill



Mississippi River Gulf of Mexico Watershed Nutrient Task Force

In the Spotlight

- Nutrient Reduction Strategies
- Water Action Hub
- 2014 Gulf Dead Zone
- Partnership with Land Grant Universities
- HTF Reports Show Progress
- New USGS Nutrients Trends Report
- EPA's N & P Website
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Mississippi River Gulf of Mexico Watershed Nutrient Task Force

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Moving Forward

Hypoxia 101

What is hypoxia and what causes it?

Hypoxia means low oxygen and is primarily a problem for estuaries and coastal waters. Hypoxic waters have dissolved oxygen concentrations of less than 2-3 ppm. Hypoxia can be caused by a variety of factors, including excess nutrients, primarily nitrogen and phosphorus, and waterbody stratification due to saline or temperature gradients. These excess nutrients, eutrophication, promote algal growth. As dead algae decompose, oxygen is consumed in the process, resulting in low levels of oxygen in the water.

Nutrients can come from many sources, including any of the following:

- Fertilizers from agriculture, golf courses, and suburban lawns
- Erosion of soil full of nutrients
- Discharges from sewage treatment plants
- Deposition of atmospheric nitrogen

Quick Links

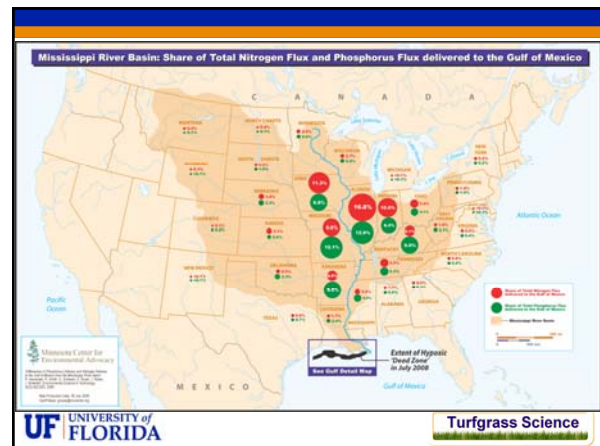
- Hypoxia 101
- Hypoxia in the News
- The MARB

On this page

- What is hypoxia?
- Importance of reduction
- Where does it occur?
- Sources

Hypoxia resources

Access other resources about hypoxia.



The Iowa Policy Project
Solid analysis. Responsible solutions.

Threats to Iowa Water Quality
Solution to Pollution: It Starts on the Farm
By Andrea Heffernan, Teresa Galluzzo and Will Hoyer
Fall Report (December 27, 2010)

Farm Runoff Must Be Focus of Pollution Policy
Report Shows Almost 80 Percent of Nutrients From Farms

DES MOINES, Iowa (December 27, 2010) — Farm practices are the central source of applied pollutants in Iowa watersheds, and policy responses need to focus on agriculture, Iowa researchers say.

"We need to get past people trying to shift our focus to smaller sources of pollution. Our central challenge to clean water in Iowa is, without question, our agricultural practices," said David Osterberg, executive director of the nonpartisan Iowa Policy Project (IPP) and a former chief of the Iowa House Agriculture Committee. "New policy makers must not allow themselves to be distracted."

The new report from IPP provides background on nutrient pollution in the Mississippi River Drainage Basin.

The report looked at application of nutrients — nitrogen and phosphorus — for various land uses:

- An estimated 96 percent of nitrogen applications went to corn ground, and about 2 percent to soybean fields. Less than 2 percent of nitrogen was applied to residential lawns or golf courses.
- About 86 percent of phosphorus applications were to corn ground, and almost 12 percent to soybean fields, with less than 2 percent applied to residential lawns or golf courses.

"While on average, households and golf course operators apply both nitrogen and phosphorus at greater rates per acre, their impact is minimal due to the small amount of acreage receiving applications," according to the report for IPP by Andrea Heffernan, Teresa Galluzzo and Hoyer.

"While on average, households and golf course operators apply both nitrogen and phosphorus at greater rates per acre, their impact is minimal due to the small amount of acreage receiving applications," according to the report for IPP by Andrea Heffernan, Teresa Galluzzo and Hoyer.

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The Des Moines Register

Iowa League of Cities looks at water-quality trading

By David Osterberg, IPP
Exp. in 2017 December 30, 2014

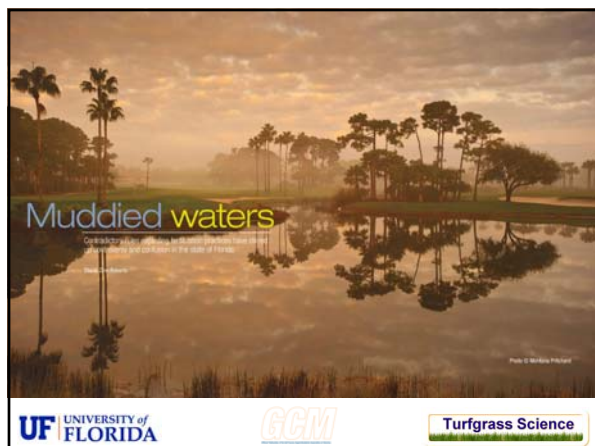
With Iowa cities facing more than \$1 billion in improvements to meet new nutrient-reduction requirements, the Iowa League of Cities is investigating developing a water-quality trading program that officials believe could help cut their costs.

Q. Some folks believe trading programs "pay the polluter" and are against them; how did cities decide to test the waters?

A. It's easy to look at the numbers in the nutrient reduction strategy and say 92 percent of nitrogen and 80 percent of phosphorus comes from non-point sources (such as farming and livestock production as well as golf courses and urban runoff), but it doesn't get us anywhere. ...

We decided we needed to get past that, because ultimately, we care about saving citizens money and getting the same environmental impacts. It does no good to sit and point the finger. We want to make sure the strategy is successful.

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Situation Analysis

- Most people moving to the south are not familiar with Florida's plants and growing conditions.
 - As the population grows and the dominant sector becomes more urban, the green industry also grows.

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Florida's Water Situation

Water Resource Caution Areas (WRCAs) in Florida

Water Resource Caution Areas: places where water is either scarce or contaminated as defined by Florida's Water Management Districts

Adapted from: Purdam, E.D. 2002. *Florida Waters: A Water Resource Manual from Florida's Water Management Districts*. Brooksville, FL.

When You're Fertilizing the Lawn, Remember, You're Not Just Fertilizing the Lawn.

You fertilize the lawn. Then it rains. The rain washes the fertilizer along the curb, into the storm drain, and directly into our waterways. The nutrients encourage algae to grow, using up oxygen that fish need to survive, resulting in fish kills. So, if you fertilize, please follow directions, and use sparingly.

Florida Turfgrass Foundation WFRPC

Efforts to correct existing problems and to prevent future problems have led to a proliferation of local and state ordinances, rules, and regulations.

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Local Fertilizer Ordinances

- Urban Turf Fertilizer Rule RE-1.003(2) FAC
- FL SB494 – Requires all fertilizer applicators to be licensed by 2014.
- FL SB2080 – Florida Friendly Landscaping
- FL Statutes 373.185 Local Florida-friendly landscaping ordinances.
- FL SB 604 – Limited Certification for Urban Landscape Commercial Fertilizer Application
- Local ordinances

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The Florida Lawn Handbook
Best Management Practices for Your Home Lawn in Florida
Third Edition

Edited by
Laurie E. Trenholm and J. Bryan Urville

“Do not fertilize when rain is imminent.”

This statement has led to numerous fertilizer “black out” ordinances – typically May through October.

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Increased Scrutiny City of Rockledge Florida

Mark Jacobs of *Save Our Aquifer* said: “We need to stop polluting the lagoon with lawn fertilizers. It is more important to have a healthy lagoon than to have unnaturally green turf grass. Many people I know have healthy turf grass and use no fertilizers; polluting the lagoon with lawn fertilizers is a completely senseless and unnecessary waste.”

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Urban Water Quality and Fertilizer Ordinances: A Review of the Scientific Literature¹

George Hochmuth, Terri Neil, Jerry Sartin, J. Bryan Urville, Chris Martinez, Laurie Trenholm, and John Ouel

Reviews

Potential Unintended Consequences Associated with Urban Fertilizer Bans in Florida – A Scientific Review

George Hochmuth¹, Terri Neil², J. Bryan Urville³, Laurie Trenholm⁴, and John Ouel⁵

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UF scientists lobby against summertime fertilizer ban using industry-funded research

By David DeCamp and Craig Pittman, Times staff writers
In Print: Saturday, October 24, 2009

Over the past year, as Pinellas and Hillsborough county officials pondered whether banning the use of lawn fertilizer during summer would cut pollution in Tampa Bay, they slowed decisions on the advice of scientists from the University of Florida.

Those experts urged them to reject the summertime ban sought by environmental groups, putting the scientists on the same side as the turfgrass industry.

“I want to make clear we’re on no side except the side of science,” Terri Neil, UF’s director of horticulture science, told Hillsborough officials at a January hearing.

But the scientists failed to mention a key fact: The turf industry has paid at least \$500,000 for research projects by UF’s Institute of Food and Agricultural Science since 2004, according to a St. Petersburg Times review of university documents.

One IFAS researcher who has testified against the summer fertilizer ban, George Hochmuth, has received \$178,000 in research grants from the industry. Ten others have received money from companies such as fertilizer manufacturer Archer Daniels Midland. Hochmuth denied any relationship between the money and IFAS’s findings.

“If you’re misreading I do biased research because of the funding source, there are fighting words,” Hochmuth said.

With heavy rain, fertilizer washes downstream into the state’s waterways, causing nitrogen and phosphorus pollution that spurs algae blooms like the one this summer that stretched 14 miles across Tampa Bay. Such blooms frequently lead to fish kills and dead zones. The blooms also can produce toxins that cause infections and respiratory problems in humans.

Greening says residential runoff accounts for 20 percent of the nitrogen in the bay.

Private funding for public research

Over the past three years, the Institute of Food and Agricultural Science has received at least \$500,000 from turfgrass industry groups while it advocates against tougher standards on fertilizer use.

Sponsor Amount

- Archer Daniels Midland \$22,000
- Brandt Consolidated \$5,000
- Environmental Institute for Golf \$36,500
- Florida Golf Course Superintendents Association \$45,500
- Florida Golf Drivers \$9,500
- Florida Turfgrass Association \$277,000
- Husker USA Corp. \$20,000
- National Turfgrass Federation \$1,000
- RPGA Tour \$9,375
- U.S. Golf Association \$78,000

Source: University of Florida funding reports

The Sierra Club has become so incensed by IFAS’s actions against the summertime ban that this week it complained to UF president Bernie Machen that IFAS “has become a lobbying effort.”

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A fertilizer ordinance timeline

Source: J. Bryan Urville, Ph.D.

2000
January 2000
St. Johns County ordinance

2002
June 2002
Green Industries BMP completed

2003
July 2003
Establishment of UF/IFAS Interim Turfgrass Fertilizer Recommendations

2004-2012
2004-2012
IFAS-funded research Urban Turfgrass Fertilization and Irrigation Best Management Practices for Reducing Impairment of Florida’s Water Resources

2007
January 2007
Golf BMPs completed

2007
July 2007
IFAS Consumer Fertilizer Task Force

2008
June 2008
Golf BMPs completed

2009
January 2009
Florida-Friendly Landscape Ordinance, Covenants, and Restrictions

2009
June 2009
Florida Gov. Charlie Crist signed into law SB 404 requiring all commercial fertilizer applicators to have an IFAS-certified license by Jan. 1, 2014.

2010-2013
2010-2013
Fertilizer ban emergency legislation attempted

2013
January 2013
Urban Turf Fertilizer Rule – season

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Laws Passed

- 1972 Clean Water Act – Created TMDLs
- State laws
 - 1991 Xeriscape Law
 - 1994 Nitrate Bill
 - 1999 TMDL Bill
 - 2005 Amendments to TMDL Bill

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BMPs vs. BMPs

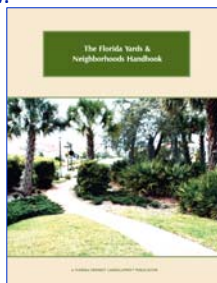
- BMPs mean different things to different people!
 - To some, it simply means best management practices as opposed to the not-so-best management practices.
 - In Florida, BMPs can signify regulatory influence!
 - FDACS – Ag BMPs
 - FDEP – Urban BMPs

BMPs – defined

- 373.4595 Florida Statutes
 - "Best management practice" means a practice or combination of practices **determined by the coordinating agencies, based on research, field-testing, and expert review, to be the most effective and practicable on-location means, including economic and technological considerations, for improving water quality in agricultural and urban discharges.**

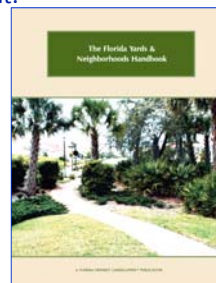
Florida Yards & Neighborhoods (FYN)

- Popular, but some misinterpreted voluntary nature and tried to make law.
 - This resulted in confused elected officials and legal chaos.
- FYN handbook recommendations were not consistent with the *Florida Lawn Handbook*.



FYN – growing pains

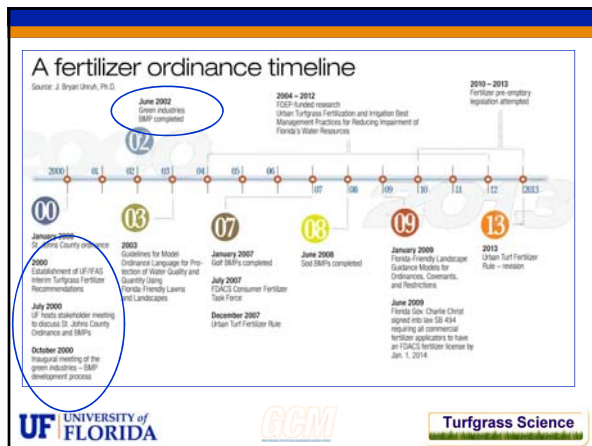
- Did not connect with average homeowner in a pre-landscaped development.
- Did not address those who wanted conventional or high-maintenance yards.
- In 2001, FYN was still a niche audience.



Three Major BMP Audiences

- Green Industry Stakeholders agreed FYN should focus on homeowners.
- FYN became more inclusive, retained Right Plant-Right Place and low-impact focus but;
 - Included information on how to properly maintain all common Florida yards without environmental harm.
 - Horticulturally consistent with other UF-IFAS/FDEP publications.
- Determined that Golf Courses and Sod need separate BMP manuals.
 - Too specialized a topic for others.
 - May need manual for athletic fields too.

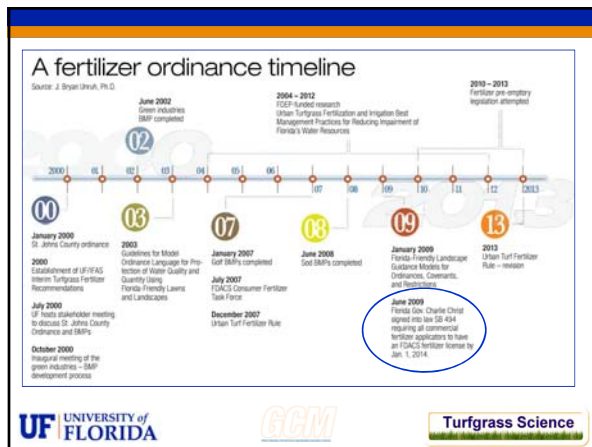




Green Industry BMPs

- Prompted by flawed local ordinance in early 2000.
- Developed by FDEP for the pest control and lawn / landscape service industry with multi-agency, industry, and UF-IFAS help.
- Educational tool for elected public officials, local regulators and interested parties.
- Intended audience does not include golf courses, athletic fields, sod production (specialized areas), or individual homeowners (FYN).

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The axe has fallen. . .

- Beginning January 2014, ALL commercial fertilizer applicators **MUST BE** certified by FDACS in order to make ANY TYPE of fertilizer application to:
 - Commercial turf or ornamental areas;
 - Turf or ornamental areas of parks or fields (other than agricultural areas);
 - Turf or ornamental area of any residential property.
- Prior to issuance of this certification, the applicator **MUST PROVIDE** proof of having received training in "Green Industry Best Management Practices" taught by UF/IFAS.

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The axe has fallen. . .

"You must enclose a certificate of completion of training issued by the University of Florida (IFAS) and/or Department of Environmental Protection (DEP) with this application."

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GI-BMP Training Options

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BMPs are a Starting Point

Employment Classification*	2010	2011	2012	2013
Pesticide: Handlers, Sprayers, and Applicators, Vegetation	2,890	3,070	3,280	2,630
**Landscape and Groundskeeping Workers	73,090	69,040	70,540	70,750
Grounds Maintenance Workers and All Other	630	1,030	1,140	1,110
Total	76,610	73,140	74,960	74,490

*Estimates are based on Standard Occupational Classification Codes.

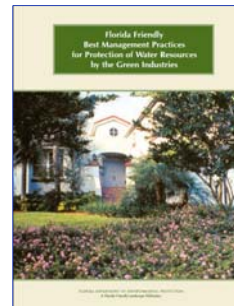
<http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/occupational-employment-statistics-and-wages>

**Landscape or maintain grounds of property using hand or power tools or equipment. Workers typically perform a variety of tasks, which may include any combination of the following: sod laying, mowing, trimming, planting, watering, fertilizing, digging, raking, sprinkler installation, and installation of mortared segmental concrete masonry wall units. Exclude "Farmworkers and Laborers, Crop, Nursery, and Greenhouse" (45-2092).

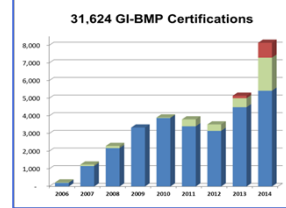


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BMPs are a Starting Point



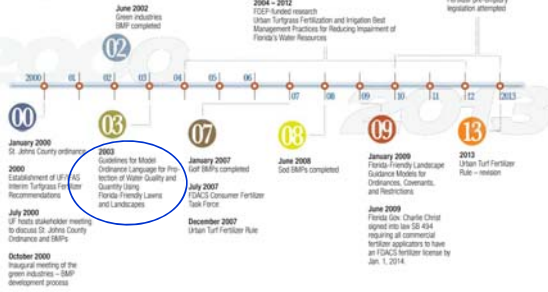
GI-BMP Training
Jan 1, 2006 - Sep 30, 2014



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A fertilizer ordinance timeline

Source: J. Bryan Unruh, Ph.D.



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Model Ordinances

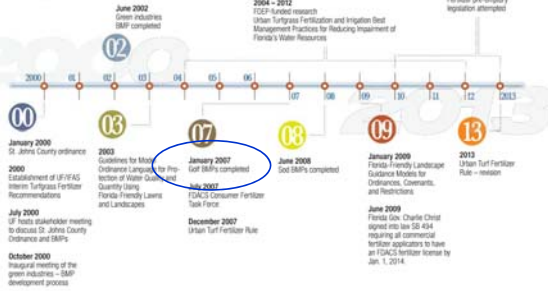
- Florida Friendly Lawn & Landscape Model Ordinance Guidelines for Water Quality and Quantity – 2003
- Revised in 2008 and 2010



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A fertilizer ordinance timeline

Source: J. Bryan Unruh, Ph.D.



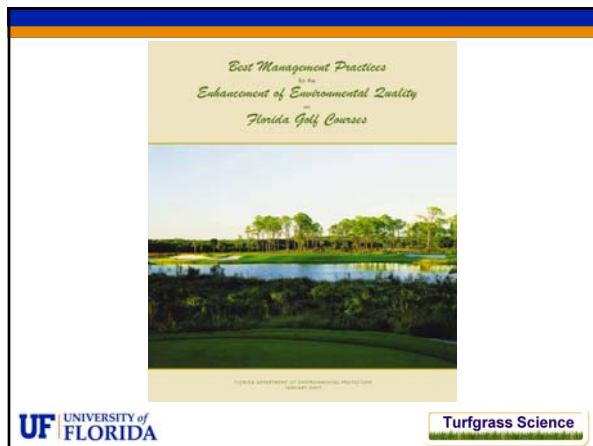
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"New" Golf Course BMPs

- 1999-2000 Contact with FGCSA about BMP manual update/expansion.
- 2000-2002 Focus on Green Industry and FYN issues.
- 2003 Began FGCSA BMP group meetings with FDEP and Dr. J. Bryan Unruh, UF.
- 2004 Developed "strawman" manual.
- 2005 Created full stakeholder workgroup to create finished product.
- January 2007, Published on web, initiated print publication process. Delivered to printer late March.
- 2007 Referenced by FDACS fertilizer label law.



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Participants

- FDEP, DCA, FDACS
- FGCSA, GCSAA, USGA, and several individual superintendents
- GC developers and designers
- UF-IFAS faculty
- Sierra Club, 1000 Friends of Florida, Audubon International
- WMDs, county and city personnel,
- Private citizens and individual golfers
- Many others

Audiences

- Who uses (or is supposed to use) the manual?
 - Superintendents and workers
 - Managers and Greens committees
 - Planners, regulators, elected officials
 - Developers and designers
 - Golfers and concerned citizens
- User expertise ranges from none to expert.

Golf BMP Topics

- Introduction
- Environmental Concepts
- Environmental Monitoring
- Design and Construction
- Irrigation
- Nutrition and Fertilization
- Cultural Practices
- Lake and Aquatic Plant Management
- Turfgrass Pest Management
- Pesticide Management
- Maintenance Operations

Golf Course BMPs – Law?

- Currently not adopted by DEP rule
 - If adopted, only Water Quality aspects will be covered.
 - If adopted, quasi-voluntary, depending on local Basin Management Action Plan (BMAP)
 - Will be required in new stormwater rule (new courses only).
 - Are being added to MS4* permits (municipal owned GCs only).
- FDACS fertilizer label refers to BMPs, only affects manufacturers' labeling
- Could be required by local ordinances

* Municipal Separate Storm Sewer Systems (Federal NPDES permits issued by FDEP)

Push for “Certification”

- FGCSA has a Golf BMP “certification” process.
 - Administered by the FGCSA.
 - Includes a written test with questions taken from the Golf BMP Manual.
 - Does not include attesting.
- Seven hour training (with breaks and lunch).
 - One hour test.

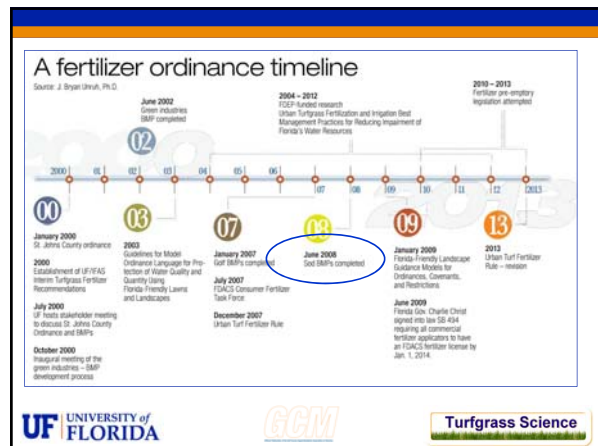
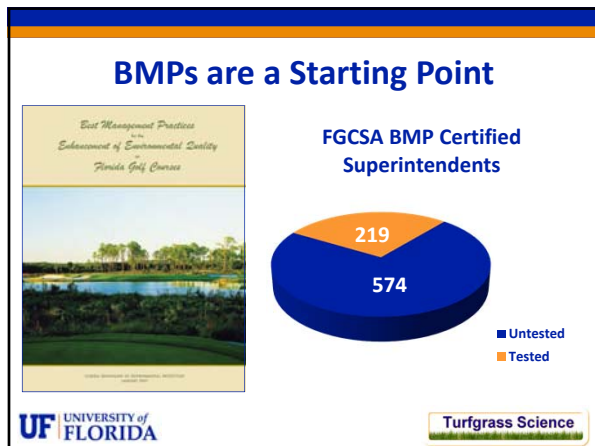




Table of Contents

- General Information for Environmental Protection on Sod Farms
 - Pest and Pesticide Management
 - Nutrient Management
 - Irrigation & Water Resources Management
 - Agronomic and Turf Species Issues



2008 Edition

- ## List of BMPs
- Nutrient Management*
 - Irrigation Scheduling*
 - Irrigation System Maintenance & Evaluation
 - Sediment & Erosion Control Measures
 - Integrated Pest Management*
 - Wellhead Protection
 - *Denotes BMPs for Accelerated Implementation
- 


- ## List of BMPs (Continued)
- Wetland and Springs Protection
 - Ditch Construction and Maintenance
 - Conservation Buffers
 - Flood Protection
 - Access Roads
 - Mowing Management
- 


NOI Form

Florida Department of Agriculture and Consumer Services
Office of Agricultural Policy

**NOTICE OF INTENT TO IMPLEMENT
BEST MANAGEMENT PRACTICES FOR
Florida Sod**

FGCSA/CSAP
120 Governor's Sq. Bldg.
Tallahassee, FL 32301

In accordance with Florida Statute 403.001(7)(c) and Rule 58A-6 FAC, the following information is hereby submitted as proof of intent to implement Water Quality/Quantity Best Management Practices for Florida Sod. Contact the BMP Implementation Team at 774-480-3022 ext. 122 if you have questions or would like assistance completing this checklist on this form. Multiple parcels and associated acreage identification numbers may be listed on one NOI. If parcels are owned by more than one owner, one NOI should be submitted for each owner, with the list of associated identification numbers on each NOI. Use an additional sheet if necessary.

Land Owner _____ Leaseholder _____

Authorized Local Contact Person _____

Local Contact Telephone _____

Local Contact Address _____

Farm Name _____



Total Number of Enrolled Acres _____ County _____

Property Tax ID Number(s) (from Property Appraiser) _____

Complete the Sod Production BMP Checklist and use the results to fill out the Notice of Intent to Implement. Submit the completed Notice of Intent to Implement to the Department of Agriculture and Consumer Services at the address below. Keep the completed General Checklist to post along with a copy of your completed (Notified) NOI. You must complete the General Checklist and submit the Notice of Intent if you wish to receive a prescription of compliance with state water quality standards. A numbered Notice of Intent is also a requirement to be eligible for some sources of BMP cost share funding.

Signature of Land Owner, Leaseholder, or Authorized Agent _____ Date _____



Mail completed form to: FGCSA - CSAP, 120 Governor's Square Bldg.,
Tallahassee, Florida 32301

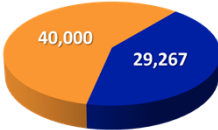
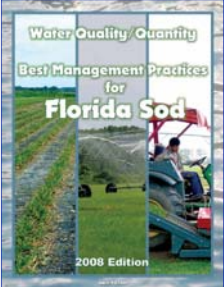
Water Quality/Quantity BMPs for Florida Sod		Summary of BMPs Implemented	
<p><small>Check "Yes" for all BMPs currently installed. For those BMPs that you plan to implement in the near future, enter the year you plan to install the BMP in the "Year Installed" column. All other implementation dates are "None".</small></p> <p><small>For practices requiring significant capital expenses, considerable time should be allotted to your entire plan to analyze implementation potential, and to establish a year in which you will be the "owner" of your BMP. For the "Year Installed" column, enter the year you plan to implement your BMP, even when the following table lists the "Year Installed" for "existing" water BMPs. For "existing" water BMPs, check "Yes" for "Year Installed" and "Year Implemented". All other water BMPs should be implemented in summer of the first year.</small></p>			
No.	Year	Year Installed	Year Implemented
1.00	1.00	1.00	1.00
1.1	1.1	1.1	1.1
1.2	1.2	1.2	1.2
1.3	1.3	1.3	1.3
1.4	1.4	1.4	1.4
1.5	1.5	1.5	1.5
1.6	1.6	1.6	1.6
1.7	1.7	1.7	1.7
1.8	1.8	1.8	1.8
1.9	1.9	1.9	1.9
2.00	2.00	2.00	2.00
2.1	2.1	2.1	2.1
2.2	2.2	2.2	2.2
2.3	2.3	2.3	2.3
2.4	2.4	2.4	2.4
2.5	2.5	2.5	2.5
2.6	2.6	2.6	2.6
2.7	2.7	2.7	2.7
2.8	2.8	2.8	2.8
2.9	2.9	2.9	2.9
3.00	3.00	3.00	3.00
3.1	3.1	3.1	3.1
3.2	3.2	3.2	3.2
3.3	3.3	3.3	3.3
3.4	3.4	3.4	3.4
3.5	3.5	3.5	3.5
3.6	3.6	3.6	3.6
3.7	3.7	3.7	3.7
3.8	3.8	3.8	3.8
3.9	3.9	3.9	3.9
4.00	4.00	4.00	4.00
4.1	4.1	4.1	4.1
4.2	4.2	4.2	4.2
4.3	4.3	4.3	4.3
4.4	4.4	4.4	4.4
4.5	4.5	4.5	4.5
4.6	4.6	4.6	4.6
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5.2	5.2	5.2	5.2
5.3	5.3	5.3	5.3
5.4	5.4	5.4	5.4
5.5	5.5	5.5	5.5
5.6	5.6	5.6	5.6
5.7	5.7	5.7	5.7
5.8	5.8	5.8	5.8
5.9	5.9	5.9	5.9
6.00	6.00	6.00	6.00
6.1	6.1	6.1	6.1
6.2	6.2	6.2	6.2
6.3	6.3	6.3	6.3
6.4	6.4	6.4	6.4
6.5	6.5	6.5	6.5
6.6	6.6	6.6	6.6
6.7	6.7	6.7	6.7
6.8	6.8	6.8	6.8
6.9	6.9	6.9	6.9
7.00	7.00	7.00	7.00
7.1	7.1	7.1	7.1
7.2	7.2	7.2	7.2
7.3	7.3	7.3	7.3
7.4	7.4	7.4	7.4
7.5	7.5	7.5	7.5
7.6	7.6	7.6	7.6
7.7	7.7	7.7	7.7
7.8	7.8	7.8	7.8
7.9	7.9	7.9	7.9
8.00	8.00	8.00	8.00
8.1	8.1	8.1	8.1
8.2	8.2	8.2	8.2
8.3	8.3	8.3	8.3
8.4	8.4	8.4	8.4
8.5	8.5	8.5	8.5
8.6	8.6	8.6	8.6
8.7	8.7	8.7	8.7
8.8	8.8	8.8	8.8
8.9	8.9	8.9	8.9
9.00	9.00	9.00	9.00
9.1	9.1	9.1	9.1
9.2	9.2	9.2	9.2
9.3	9.3	9.3	9.3
9.4	9.4	9.4	9.4
9.5	9.5	9.5	9.5
9.6	9.6	9.6	9.6

Importance of NOI Form

- NOI Form is Key to Starting the Process
 - Declares Your Intent to Implement BMPs
- Mechanism for the Presumption of Compliance with State Water Quality Standards
 - Prerequisite to Cost-Share Monies
 - Can be Filed Electronically or Sent as Hard-Copy via Mail to Tallahassee FDACS Office
- Generates Data for GIS Maps and Reports for BMP Coverage by Basin



BMPs are a Starting Point



Category	Acres Enrolled
BMP	29,267
Non-BMP	40,000

■ BMP
■ Non-BMP

UF UNIVERSITY of FLORIDA

Turfgrass Science
University of Florida IFAS Extension

A fertilizer ordinance timeline

Source: J. Bryan Unruh, Ph.D.

2000 01 02 03 04 05 06 07 08 09 10 11 12 13

00 January 2000
St. Johns County ordinance

02 June 2002
Green Industries BMP completed

03 2000
Establishment of UF/IFAS interim Turfgrass Fertilizer Recommendations

07 January 2007
Golf BMPs completed

08 July 2007
FDACS Fertilizer Permit for Golf Turf

09 January 2009
Florida-Friendly Landscape Guidelines Model Ordinance, Commercial Ordinance, Commercial and Residential

10 June 2009
Florida Gov. Charlie Crist signed into law SB 414 requiring all commercial fertilizer applicators to have an FDACS fertilizer license by Jan. 1, 2014.

13 2013
Urban Turf Fertilizer Rule - revision

2004 - 2012
TSPF-funded research on Urban Turfgrass Fertilization and Irrigation Used Management Practices for Reducing Impairment of Florida's Water Resources

2010 - 2013
Fertilizer anti-emergence legislation attempted

2003 Guidelines for Model Ordinance Language for Protection of Water Quality and Quantity Using Florida's Wetlands Laws and Landscapes

2004 First public hearing meeting to discuss St. Johns County Ordinance and BMPs

2005 Practical meeting of the green industries - BMP development process

2006 December 2007
Urban Turf Fertilizer Rule



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GCN

Turfgrass Science
The International Journal of Turfgrass Science

Pre-2015 Statewide Fertilizer Rule (a.k.a Urban Turf Rule)



- Limits **N** to 1 lb per 1,000 ft² maximum application rate or 0.7 lb per 1,000 ft² for quick-release N
- Limits **P** to 1/4 lb P₂O₅ per 1,000 ft² per application and 1/2 lb P₂O₅ per 1,000 ft² annually
- Annual N rates follow UF recommendations
- Requires lawn care industry to follow Green Industries BMP manual



2015 Statewide Fertilizer Rule

(a.k.a Urban Turf Rule)

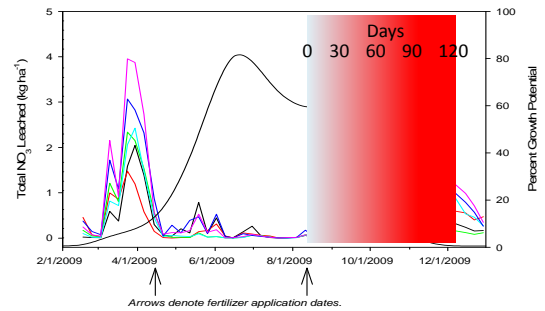
- “Actively Growing” means turf that needs mowing at least every two weeks.
- Nitrogen shall not be applied at an application rate greater than 0.7 lbs of readily available nitrogen, per 1000 sq. ft. per application at any one time based on the soluble fraction of formulated fertilizer.



2015 Statewide Fertilizer Rule (a.k.a Urban Turf Rule)

- Not more than 2 lbs. of total nitrogen per 1000 sq. ft. per application may be applied during the spring or early summer;
- Not more than 1 lb total nitrogen per 1000 sq. ft. per application may be applied during the fall or winter.

SR Nitrogen Source Study – Jay, FL



Education – must be “outcomes” based



- Inputs - *what resources go into a program*
 - Money, staff, equipment
- Activities - *what activities the program undertakes*
 - Development of materials, training programs
- Outputs - *what is produced through those activities*
 - Number of booklets produced, workshops held, people trained

Education – must be “outcomes” based



- Outcomes/Impacts:
 - Short Term (learning: awareness, knowledge, skills, motivations)
 - Medium Term (action: behavior, practice, decisions, policies)
 - Long Term (consequences: social, economic, environmental etc.)

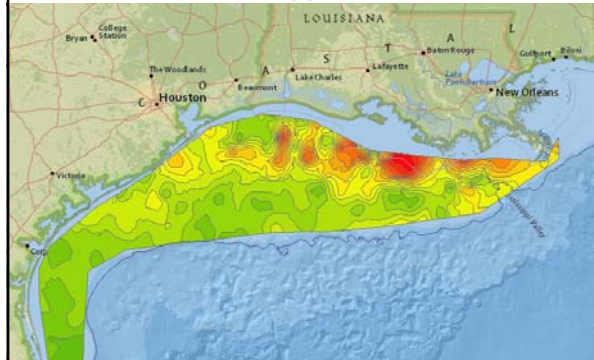
Education – must be “outcomes” based

- Education programs must:
 - Be sufficiently rigorous;
 - Delivered by qualified instructors;
 - Focus on the Principles!
 - Teach the “why’s” – not just the “how’s”.
- Those being educated must demonstrate competency.

“Tell me and I’ll forget; show me and I may remember; involve me and I’ll understand.”

Chinese proverb

2014 Dissolved Oxygen Measurements



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J. Bryan Unruh, Ph.D.
West Florida Research and Education Center
University of Florida/IFAS
jbu@ufl.edu

UF UNIVERSITY of
FLORIDA

Turfgrass Science



Dr. J. Bryan Unruh
University of Florida
jbu@ufl.edu