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ENH979

Homeowner Best Management Practices for the Home Lawn[1]

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A healthy lawn is an important component of an urban landscape. Not only do lawns increase the value of a property, they also reduce soil erosion, filter stormwater runoff, cool the air, and reduce glare and noise. A healthy lawn effectively filters and traps sediment and pollutants that could otherwise contaminate surface waters and groundwater.

Management of home lawns often is not well understood by residents, and this can have adverse effects on turf health. Loss of turf health can render it less able to filter stormwater runoff and reduce soil erosion, which can lead to increased nonpoint source pollution. Misuse of fertilizers can result in direct deposition of granules into water bodies or increased risk of leaching into groundwater. In either case, the result can be unhealthy turf and increased nonpoint source pollution. Therefore it is very important that homeowners who do their own lawn care use Best Management Practices (BMPs) when maintaining their lawns. Best Management Practices follow Florida-Friendly Landscaping™ principles, developed for maintenance of a healthy landscape that does not contribute to nonpoint source pollution. Following BMPs can reduce potential pollution of Florida's surface or groundwater resources as a result of lawn and landscape maintenance. Here are some easy-to-follow tips on Florida-friendly lawn maintenance:

Fertilization

Fertilize Appropriately

Proper fertilization consists of selecting the right type of fertilizer and applying it at the right time and in the right amount for maximum plant uptake and benefit.

Lawns require nutrients throughout the growing season to stay healthy. The growing season will vary depending upon location in the state. The amount of fertilizer required annually will depend primarily on the grass species and geographical location.

In June of 2007, the Florida Department of Agriculture and Consumer Services (FDACS) passed a rule regulating labeling requirements for urban turf (home lawn) fertilizers (Urban Turf Fertilizer Labeling Rule (RE-1.003(2) FAC). This rule requires fertilizer manufacturers to place specific language on fertilizer bags with the intent of reducing potential nonpoint source pollution that might result from misapplication of fertilizer to lawns. The rule regulates the maximum amount of nitrogen and phosphorus that is in the bag and directs users to follow UF/IFAS recommendations for annual fertilizer application rates. The rule is based on scientific research conducted by UF/IFAS.

Selecting a Fertilizer

The labeling requirements make it easier for homeowners to find appropriate lawn fertilizers in the retail market.

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Select only a fertilizer that states that the fertilizer is for use on urban turf. Do not use a fertilizer meant for flower or vegetable gardens on lawns. For homeowners doing their own fertilizing, these products will contain both slow-release nitrogen and low or no phosphorus. Slow-release nitrogen will provide a longer-lasting response from the grass and reduces the potential for burning from excess application. The low phosphorus will not be harmful for many lawns in Florida because some Florida soils are already high in phosphorus and turf requirements for this nutrient are low relative to nitrogen and potassium. However, there have been increased phosphorus deficiencies in a number of lawns throughout Florida and soil tests may be warranted if deficiency symptoms occur. These symptoms include reduced growth and dark green followed by purple shoot color of lower leaves. A soil test is required to identify a phosphorus deficiency and allows for supplemental phosphorus to be applied when a deficiency exists.

Fertilizer Timing

Warm-season grasses grow in response to both increasing temperature and day length, making summer the time of most active growth. This is when grasses have the best ability to take up the nutrients and also have the most need for them. 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. This occurs largely because the root systems of warm-season grasses "slough off" during the winter months (Figure 1), rendering them less able to assimilate nutrients from fertilizer. This is especially true in north and central Florida and becomes less common as you head further south in the state. University of Florida research on nitrate leaching from various lawngrass species found that the potential for nitrate leaching in north central and northwest Florida is greatest in the months of January through March, when the root system has the least mass and the grass may be in some stage of cold-induced dormancy. It is therefore important to wait until growth begins in the spring to fertilize. For north Florida and the panhandle, this would be around the middle of April. For north-central and central Florida, it would be early April.

The last fertilizer application should be around the middle or end of September in north Florida and early October in central Florida. In south Florida, you can apply fertilizer throughout the year.

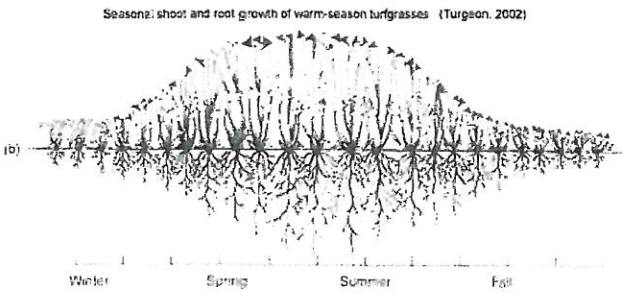

Figure 1. Annual root and shoot growth cycle of warm-season turfgrass species.

Credits: A. J. Turgeon

Fertilizer Application Rate

No matter what species of grass you have or where you live in the state, you should apply no more than 1 lb of nitrogen for every 1000 square feet of lawn each time you apply fertilizer. To see how much fertilizer contains 1 pound of nitrogen, refer to Table 1, which lists the amount of fertilizer needed by percentage of nitrogen in the bag. For example, if you have a fertilizer that has 15% nitrogen (the first of the three numbers on the bag), you would apply 6.5 pounds of that product per 1,000 square feet to apply the correct amount of nitrogen.

Rates for annual fertilization should follow the UF/IFAS recommendations found in Table 2 for your grass species. Applying fertilizer at rates greater than listed can contribute to increased disease or insect problems and may increase the potential for increased nutrient leaching or runoff. This will determine how many applications you will make annually. For example, if you live in central Florida and have St. Augustinegrass, you can apply anywhere from 2 to 5 pounds of nitrogen on a yearly basis. This means that you might apply fertilizer anywhere from two to five times a year. Typically, commercial lawn care companies would fertilize at the higher range (four to five times yearly), while a homeowner may fertilize fewer times a year.

An important part of figuring out how much fertilizer to apply is knowing the size of your lawn. It is easiest to do this by breaking it into the front, back and sides of the house and adding those amounts of fertilizer to the spreader. This will help you apply the right amount.

What If You Live In an Area Where Lawn Fertilization is Prohibited from June 1 Through September 30?

A number of cities and counties in Florida have passed fertilizer ordinances that do not allow for application of nitrogen or phosphorus fertilizers during the summer. These ordinances are passed out of concern for nutrient leaching due to potential heavy rainfall, but research has shown that this is the time of least nitrate leaching (Trenholm, Unruh, and Sartain 2012). If you are in one of these restricted areas, 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 three to four 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.

Other Important Fertilization BMPs for Homeowners

SOIL TEST

It is important to test your soil to determine phosphorus and other nutrient levels. Check with your county Extension Office for information on how to submit soil samples for testing or go to http://soilslab.ifas.ufl.edu/ESTL%20Home.asp for online information on soil testing.

FERTILIZING SMALL STRIPS OF GRASS AND AROUND WATER BODIES

If you have a small strip of lawn that adjoins impervious surfaces, such as a sidewalk or pavement, use a spreader equipped with a deflector shield that will spread the fertilizer in a 180° arc to keep it away from the paved area. Use the same shield when you are fertilizing areas next to water bodies. Leave a 10-ft strip of turf around the water body unfertilized to avoid polluting the water.

FERTILIZER SPILLS AND STORAGE

If you spill fertilizer on the driveway or sidewalk, sweep it up and put it back in the bag. Always sweep up spilled fertilizer rather than rinsing it away, even when the spill is on the lawn. Spilled fertilizer easily finds its way down storm drains or into the ground and from there into the water supply.

Store your unused fertilizer where it will stay dry. Do not store it next to pesticides, fuel, or solvents.

WATERING FERTILIZER IN

After applying fertilizer, you will need to irrigate long enough to move the granules off of the leaf blades and into the soil, where they will be taken up for use by the plant. This will avoid leaf burn and reduce potential runoff of nutrients. Only apply about ¼" of water to move the fertilizer into the top few inches of the soil, where it will best be taken up. More water than this may lead to leaching of the nutrients past the root zone, which will result in potential groundwater contamination.

FERTILIZING NEWLY PLANTED TURF

Research has shown that the risk of nutrient leaching is much greater on newly planted sod than on established turfgrass. This is due to the lack of a deep root system on newly planted grass and due to import of some nutrients from the sod farm. Wait at least 30 to 60 days after planting to apply nitrogen fertilizer to turfgrass.

WEATHER AND FERTILIZATION

Do not fertilize if the National Weather Service has issued a flood, tropical storm, or hurricane watch or warning, or if heavy rains (greater than 2 inches) are likely within 24 hours.

Mowing

Mowing may seem like a never ending chore during the summer months, but it is one of the most important practices that can influence the health of your lawn. Follow these suggestions for a healthy, happy lawn:

- Mow at the highest recommended height for your grass species. For St. Augustinegrass standard cultivars, this is 3.5–4 inches. If you have St. Augustinegrass "dwarf" cultivars 'Delmar,' 'Seville,' or 'Captiva,' mow at 2–2.5 inches. Mow bahiagrass at 3–4 inches and centipedegrass and bermudagrass at 1–2 inches. Mowing at these heights promotes a deep root system, which makes grass more stress tolerant.
- Never remove more than ⅓ of the leaf blade at any one time. Removing too much of the leaf blade can stress your lawn and leave it susceptible to insect or disease invasion. If you miss a scheduled mowing event, raise the mower height and bring the grass back down to the recommended level gradually over the next few mowing events.
- Leave grass clippings on the lawn. They do not contribute to thatch and actually return a small amount of nutrients and organic matter back to the lawn.

- Keep your mower blades sharp. Dull mowers tear the leaf blades. This makes the lawn look bad and leaves it susceptible to insect or disease invasion.
- Do not mow your lawn when it is wet. This is dangerous for you, tough on the mower, and bad for the grass.
- Always wear heavy, closed-toed shoes and eye protection when mowing.

Irrigation

Improper irrigation practices damage more lawns than any other single cultural practice. Train your grass to be more drought tolerant using the following methods:

- Irrigate as infrequently as you can without having your grass start to go into excess drought stress. When you water, apply ½–¾ inch to help encourage the roots to grow deep into the soil. Grasses irrigated in this manner will have a better chance of surviving watering restrictions or drought periods.
- Turn your automatic sprinkler system to the "off" position and turn it on when your lawn shows signs of needing irrigation. Adjust your timer seasonally. Irrigation frequency will vary depending on where you are in the state, as well as on the amount of shade in the landscape, soil type, etc. Many areas of the state have mandated watering restrictions, so be sure to be aware of and follow any regulations regarding when you can irrigate your lawn. A lawn is ready for water when the leaf blades show at least one of the three wilt signs: when leaf blades start to fold in half lengthwise, when the grass takes on a bluish cast, or when footprints remain visible in the lawn long after being made. Unless restrictions do not allow, irrigate when about 50 percent of the lawn shows one of these signs, unless rain is forecast in the next 24 horrs.
- In most parts of Florida, irrigate to apply ½–¾ inch of water. If you live in an area with a hard pan layer right below the soil surface, you will likely get runoff before that amount of water can be delivered. In that case, irrigate to the point of runoff, let the water drain, and then apply the remainder of the needed amount a short time later. Do not continue to let the irrigation system run past the point of runoff; this only wastes water. Coastal areas that experience sea breeze may require more frequent irrigation.
- To determine how long you need to run your irrigation system to apply ½–¾ inch of water to the whole lawn, place straight-sided cans around the perimeter of each irrigation zone. Turn on the irrigation system and monitor the cans to see how long it takes to fill them to ½–¾ inch. Each zone will likely have different run-times, therefore, time irrigation intervals for the zones accordingly. For additional information refer to AE220, "Operation of Residential Irrigation Controllers" (http://edis.ifas.ufl.edu/ae220).
- If you are in an area with very sandy soil, you may need to apply the higher amount of water. Heavier clay soils may only need the ½-inch rate.
- In north or central Florida, irrigate every two to three weeks during the winter months if rainfall does not occur, even if your grass is dormant. The roots are still viable, and irrigating through the winter will help the grass green up more quickly in the spring.
- Irrigate around sunrise or in the early morning hours. The leaf blades must dry out fully during the day to reduce disease.

References

Trenholm, L. E., J. Bryan Unruh, and Jerry B. Sartain. 2012. "Nitrate leaching and turf quality in established 'Floratam' St. Augustinegrass and 'Empire' Zoysiagrass." *J. Envir. Quality* 41:793–799.

Table 1. Recommended application rates for turfgrass fertilizers to Florida lawns.

	6% N	10% N	12% N	15% N	16% N	23% N	27% N
1,000 ft²	16.5 lbs	10 lbs	8.5 lbs	6.5 lbs	6 lbs	4.5 lbs	4 lbs
1,100 ft²	18.5 lbs	11 lbs	9.5 lbs	7 lbs	7 lbs	5 lbs	4 lbs
1,200 ft²	20 lbs	12 lbs	10.5 lbs	8 lbs	7.5 lbs	5 lbs	4.5 lbs
1,300 ft²	22 lbs	13 lbs	11.5 lbs	8.5 lbs	8 lbs	5.5 lbs	5 lbs
1,400 ft²	23.5 lbs	14 lbs	12.5 lbs	9 lbs	9 lbs	6 lbs	5 lbs
1,500 ft²	25 lbs	15 lbs	13.5 lbs	10 lbs	9.5 lbs	6.5 lbs	5.5 lbs
2,000 ft²	33.5 lbs	20 lbs	17 lbs	13 lbs	12 lbs	9 lbs	8 lbs
2,500 ft²	41.5 lbs	25 lbs	21 lbs	16.5 lbs	15.5 lbs	11 lbs	9.5 lbs
3,000 ft²	50 lbs	30 lbs	25.5 lbs	19.5 lbs	18 lbs	13 lbs	12 lbs
3,500 ft²	58 lbs	35 lbs	30 lbs	23 lbs	21.5 lbs	15.5 lbs	13.5 lbs
4,000 ft²	66 lbs	40 lbs	34 lbs	26 lbs	24 lbs	18 lbs	16 lbs
4,500 ft²	74 lbs	45 lbs	38 lbs	29.5 lbs	27.5 lbs	20 lbs	17.5 lbs
5,000 ft²	82 lbs	50 lbs	42.5 lbs	33 lbs	31 lbs	22 lbs	19 lbs

*These recommendations assume use of a properly calibrated spreader. See www.yourfloridalawn.ifas.ufl.edu for instructions on calibrating your spreader.

Use this table to match the size of your lawn to the percentage of nitrogen in your fertilizer to find the amount of fertilizer you need to apply. It is best to break the lawn into front, back and sides and determine the square footage of each area.

Table 2. UF/IFAS recommendations for annual nitrogen application rates in pounds of nitrogen per 1,000 square feet of lawn.

	Annual Nitrogen Application Rates			
Region of State	**Bahiagrass**	**Centipedegrass**	**St. Augustinegrass**	**Zoysiagrass**
North	2–3	1–2	2–4	2–3
Central	2–4	2–3	2–5	2–4
South	2–4	2–3	4–6	2.5–4.5