

Appendix B

TURF AND LANDSCAPING BEST MANAGEMENT PRACTICES

Proper fertilization, irrigation, and mowing practices lead to healthy lawns and urban landscaping. A healthy lawn *can* exist in harmony with local and regional natural systems, especially in areas with considerable amounts of developed land including impervious surfaces such as parking lots, sidewalks, and driveways.

Proper fertilization of turf grass will produce a dense root system and can actually reduce leaching and runoff. A lawn with a good root system and shoot density reduces pollution because it allows for greater infiltration of stormwater into both the thatch and root zones of the lawn. This filtering process facilitates the breakdown of various types of organic pollutants and pesticides and significantly reduces the possibility of pollution runoff by helping to impede the movement of stormwater.

FERTILIZER BMPS

Choosing Fertilizer

When purchasing fertilizer, read the labels and choose one that fulfills the following criteria:

1. It is a slow release fertilizer. Homeowners and other nonprofessionals should use only slow release fertilizers. Only a trained professional should apply products comprised predominately of quick release or water-soluble fertilizers. Slow release fertilizers will significantly reduce the potential for nutrient runoff and leaching because it has been manufactured to release nutrients gradually. Therefore, fertilizers having a higher percentage of slow-release nutrients have reduced potential for environmental impact and damage to the turf grass.
2. It contains 30 to 50 percent or more slow release nitrogen and little phosphorus. Every fertilizer label has three numbers representing the percent by weight of nitrogen, phosphorus, and potassium in the fertilizer. For example, a fertilizer bag with the numbers "8-2-10" indicates that the bag of fertilizer contains 8 percent nitrogen, 2 percent phosphorus, and 10 percent potassium.

- **Nitrogen** - When fertilizing lawns in South Florida, use a fertilizer with 30 to 50 percent (or more) of slow release form of nitrogen. Up to one pound of slow release nitrogen can be applied per 1,000 square feet at each fertilizer application. If you are not using slow release fertilizer,

apply no more than one-half pound of nitrogen per 1,000 square feet with any single application.

- **Phosphorus** - Phosphorus is the second number in the fertilizer analysis identified on every fertilizer bag. Most landscapes in South Florida do not need additional amounts of phosphorus applied to the soil. Misapplication of phosphorus has the potential to result in nutrient pollution. The high levels of phosphorus in stormwater that drain into South Florida canals pose a serious threat to the water quality of the Everglades. Therefore, before using a fertilizer containing more than 2 percent phosphorus, test the soil to determine if adding phosphorus is warranted.
- **Potassium** - Potassium is the third number in the fertilizer analysis identified on every fertilizer bag. Potassium is believed by some lawn applicators to provide the lawn with increased stress tolerance against effects of drought, cold temperatures, and traffic by strengthening the root system.

3. The label contains complete directions for proper application procedures. Besides increasing the potential for nutrient runoff or leaching into canals and waterways, too much fertilizer can promote disease in the lawn, excessive damage from insects, and unnecessary stress from droughts.

Application

When applying fertilizer, practice the following:

1. For both your lawn and the environment, it is better to apply fertilizer to turf grass in three small applications throughout the year than in one single application.
2. If possible, reduce application rates in the summer if possible.
3. Watch the weather before fertilizing. Whenever possible, postpone fertilizing when a precipitation of greater than 1 inch of rain is expected. This will also reduce the loss of fertilizer to stormwater that will end up in nearby canals or waterways.
4. Calibrate and adjust fertilizer spreaders to prevent misapplication.
5. To prevent spillage, use a tarp or sheet of plastic under the spreader when filling or emptying fertilizer spreaders.
6. Maintain a minimum three-foot "ring of responsibility" around waterways by keeping fertilizer and pesticide applications away from the water's edge or the "edge of vegetation."

7. When applying fertilizer, make sure that the fertilizer does not fall onto impervious surfaces such as sidewalks, driveways, or streets. Sweep or blow granular fertilizers off hard surfaces onto the lawn. Never “hose off” fertilizer that has been spilled onto an impervious surface.
8. After emptying the unused fertilizer in the spreader back into the bag, rinse the spreader out in a corner of the yard. Do not wash the fertilizer spreader on an impervious surface.
9. Remember to use slow release a fertilizer with a low percentage of phosphorus and read and follow the label very carefully.

TURF IRRIGATION BMPS

Properly irrigating turf grass will keep water in the root zone, reduce excess application of water, and retain stormwater on site. This can be accomplished by implementing the following BMPs:

1. Let your grass tell you when to water. The lawn requires irrigation when it shows a wilt in the late afternoon for several days or a week. Only irrigate in accordance with water restrictions. Single-event timers can be integrated into your sprinkler systems, allowing you make a conscientious decision each time you irrigate.
2. Irrigate the lawn just enough to replenish the root zone. Approximately 3/4 inch of water will accomplish this. Depending on the type of spray heads, this may be as short as 13 minutes or as long as 30 minutes, provided that the heads are properly spaced. Rotary heads typically require longer intervals, typically 30 minutes to 1.5 hours or more. The appropriate watering interval can be determined based on system characteristics or a “catchment” can test.
3. Test your system using a “catchment can” test. Scatter 20 to 30 cylinder containers (such as soup cans) throughout the landscape, run the zone for a defined period (such as 30 minutes), and measure the depth in each can. The results will tell you how long you must irrigate, and will pinpoint problem areas for maintenance or redesign. Periodically retest your sprinkler system, inspect spray patterns, and ensure uniformity of watering by providing overlap with head-to-head coverage.
4. Use a rain gauge and turn off your time clock if your lawn has received 3/4 inch of rain. A rain gauge is a useful reminder that rainfall provides all the water a lawn requires most of the year in Florida.
5. Add a rain shut-off device to your sprinkler system or an in-ground moisture sensor such as a tensiometer. Such a device or sensor overrides the normally scheduled irrigation whenever sufficient rain has occurred. This is especially helpful if you plan to be away from your home.

6. Encourage and remind your neighbors to implement BMPs as well. Share this information with them and talk about Florida's wet-dry cycle and about everyone's responsibility to respect and abide by irrigation laws.
7. Encourage your municipality (or the county) to enforce irrigation laws.
8. Make sure the people you hire to install and repair your irrigation system are licensed professionals.
9. Adopt performance standards for irrigation systems so that when they are installed, they meet targeted efficiency and uniformity of application criteria.
10. Lay out irrigation systems efficiently to attain high uniformity. Use a pipe size large enough to keep pressure losses at a minimum, and to help achieve uniformity. Establish separate zones for turf and ornamental plants. Use drip or micro irrigation for shrubs and bedded plants. Place rotary heads and spray heads in separate zones. Make sure that all sprinklers are placed as closely as recommended in manufacturers' specifications. This normally requires that the radius covered by one sprinkler head should just barely reach the adjoining sprinkler heads.
11. Examine the irrigation system and repair any leaks. Clean out clogged sprinkler emitters, and remove obstacles and low overhanging branches that block stream flow. Raise any sprinkler heads that do not clear the turf canopy, or use pop-ups. Replace any heads and fittings that are broken or cracked. Use partial (half- or quarter-circle) heads to replace full-circle heads that over spray onto the street or buildings. Consider adding heads in areas that do not receive enough water. The solution to dry spots is to fix the irrigation in that zone, and not to over water the rest of your property to compensate for poor coverage.
12. Vary irrigation schedules according to the season. For example, from November through February, irrigate St. Augustine grass no more than once every seven days, and from March through October, irrigate it two times per week, except after rain.
13. Use an irrigation schedule suitable for the type of grass and the terrain. For example, Bahia grass in level areas can be maintained year-round with no irrigation.
14. When establishing or renovating a new lawn, make sure that the sod does not dry out, but irrigate no more than once a day.
15. Water your lawn infrequently and deeply. Frequent shallow irrigation encourages a shallow root system, which has a small soil moisture reserve and will make the lawn more susceptible to drought. Frequent irrigation also fails to take advantage of the fact that it is rarely dry for long in South Florida, and by waiting a little longer for rainfall, it is possible that you will not have to irrigate at all. Grasses that are over

watered go into a condition of luxuriant water use and they will use water less efficiently.

16. Capture and recycle rainwater for use on turf, thereby reducing reliance on city water. For example, raised road areas can avoid the use of hard curbing to allow water to run off into the landscape. An approach for parking lots is to interrupt curbing with gaps that permit drainage into the landscape.
17. Comply with seasonal water use restrictions imposed by the South Florida Water Management District or other authority.
18. Remember, with or without water conservation restrictions, do not irrigate your lawn between 8:00 a.m. and 5:00 p.m. For best results, water in the early morning. A predawn watering is the most productive type of irrigation because there is less wind at this time.

VEGETATION MANAGEMENT BMPS

Typical urban landscapes that are not maintained using BMPs can at best be unwelcome neighbors to natural communities, and at worst a serious threat to natural systems. It is possible, however, to maintain urban landscapes in a manner that allows the urban environment to coexist with natural systems with little or no degradation of the natural environment. Two types of BMPs can help accomplish this. The first type maintains a healthy vegetative cover that will reduce the amount of phosphorus, nitrogen, and other potential pollutants from entering into regional canals, waterways, lakes, and ultimately the Everglades. The second type of BMPs are cultural practices that keep turf and landscaping healthy and tolerant to South Florida seasons, insects and pests, and other environmental stresses.

Vegetative Cover BMPs

1. When selecting plant materials consider native species or noninvasive plant species that are adapted to South Florida's tropical and subtropical environment and can thrive despite fluctuations in the region's wet and dry seasons.
2. Select plants from a reputable nursery, garden center, or sod farm to insure healthy, conditioned plants that are free of pests and weeds.
3. When installing plants, make sure they are properly sited, depending on the plant, with respect to sunlight, drainage and space requirements. This will help improve the chances for successful establishment and will reduce future maintenance needs.

Cultural Practices

1. Mow at the recommended height for your grass species. For Bahia and St. Augustine grasses, the recommended height is generally the highest

setting your mower can be set at. Be careful not to remove any more than one-third of the leaf blade at a time because the removal of more tissue will stress the grass, leaving it more vulnerable to drought or insects.

2. Mowing at least once a week will produce a lawn with a deeper, more extensive root system. Deeper root systems result in better tolerance of environmental stresses such as drought, shade and traffic. Proper mowing practices will also result in fewer problems with insects or disease.
3. Practice "grass cycling," or mulching by leaving clippings on the ground. This helps to return nutrients to the soil. Encourage neighborhood or homeowner associations to allow composting and follow recommended practices for composting organic wastes such as grass clippings, leaves, and other organic waste.
4. Make sure grass clippings do not blow into water bodies or onto impervious surfaces such as driveways, sidewalks, or street curbs where they will eventually end up in your canal or lake during rain events. Nutrients trapped in organic matter, such as grass clippings, leaves, and branches, can be rereleased as pollutants when organic debris enters basin canals, waterways, and lakes.
5. Properly prune trees at least annually to reduce storm-generated leaf and limb debris that can interfere with canal function during storm events.

GENERAL LANDSCAPE BMPs

Some additional landscape BMPs are as follows:

1. Make sure the people you hire to care for your lawn, landscaping, and waterways are licensed professionals and that they are aware of the relationship between household habits and the health of natural systems.
2. Do not allow fertilizers, pesticides, lawn clippings, soil, and other landscaping materials to collect on impervious surfaces where they can be washed off into storm drains connected to canals and waterways.
3. Rinse off pesticide and fertilizer application equipment on the grass and away from impervious surfaces such as driveways or sidewalks. Be careful to minimize the likelihood of spills and runoff into storm drains and into connected canals and lakes.
4. Keep swales on your property clear to allow stormwater to flow unimpeded. Do not backfill or park on swales, and do not plant trees or shrubs in swales.

5. Property managers as well as homeowners should establish realistic, measurable outcomes for landscape BMPs, so their adoption and impact can be achieved and evaluated.
6. Educate your neighbors and homeowner associations about different types of fertilizer and the appropriate applications for South Florida.
7. Provide recognition and awards to good environmental stewards in your neighborhood and community to generate excitement and community pride regarding BMPs.