

How to Fertilize Smart

Fertilize Appropriately

At the most basic level, fertilizers feed plants, helping them to grow better. Did you know that you can choose fertilizers that can direct your plants' growth in specific ways? Different types of fertilizers encourage plants to develop:

- More or larger blooms
- Greener leaves
- Faster growth
- More fruit

Fertilizing can be done by applying composted organic material, packaged fertilizer or a specific mineral, such as iron. Different types of plants benefit from different fertilizers, so we'll discuss fertilizing lawns, woody landscape plants and palms in separate sections.

Fertilizing Lawns

Grass that receives appropriate levels of fertilizer — not too little and not too much — produces a dense root and shoot system capable of filtering out impurities or other components of leachate or runoff. A properly fertilized lawn absorbs nonpoint source pollutants, helps stabilize soil, reduces ambient air temperatures and promotes a healthy ecosystem of its own. Since it grows more vigorously, a properly fertilized lawn might also require fewer cultural or chemical controls for weeds, insects or diseases. Overfertilizing can aggravate pest problems, stimulate excessive growth and require frequent watering. In addition, when people use too much fertilizer on their landscapes, it can seep through the ground, past the root zone of the grass, plants or trees and into the aquifer. It can also be washed off by rainfall directly into surface water or via storm water systems. The way you fertilize your lawn influences how much fertilizer is taken up by grass — and how much might be lost to leaching or runoff. Several factors determine pollution potential from lawn fertilizing. Among these are:

- Type of fertilizer
- How much you apply
- How you apply it
- When you fertilize
- How much irrigation you apply afterwards
- Overall health of the lawn

Before you apply fertilizer, it is very important that you read and understand the label. If you do not feel confident in your ability to comprehend and follow label instructions, consider hiring a lawn service professional.

Selecting a Fertilizer

When selecting fertilizer, look at the three numbers on the bag. They will read something like 15-0-15 or 16-2-8. The first number represents the percentage of nitrogen in the bag, the second refers to phosphorus and the third number refers to potassium. For example, a 50 lb. bag of 16-2-8 is 16% nitrogen, or eight pounds of nitrogen, 2% phosphorus, or one pound, and 8% potassium, or four pounds. The remaining weight is usually comprised of inert ingredients. Nitrogen and phosphorus cause the most problems with regard to water pollution.

What fertilizer is safest to buy?

Look for **slow-release fertilizers**, or fertilizers that have a high percentage of slow-release nitrogen in them. These products have less potential to leach or run off into Florida's waterways than quick-release sources. Nitrogen promotes shoot growth, so if you use slow-release nitrogen, you'll have less growth surge. In lawns, that means less **thatch** accumulation following fertilizer application – which ultimately means less mowing.

How do you know if a fertilizer is slow-release?

Look at the fertilizer sources listed on the back of the bag and find the amount of nitrogen that is "slow-release." The higher the percentage of slow-release, the less chance of leaching – and less thatch and mowing!

FYN GLOSSARY BOX

Slow-release fertilizer: a fertilizer that releases its nutrients gradually, over a period of time **Thatch** a layer of dead and living plant matter that accumulates between soil and turf, often blocking water and nutrient movement into soil

How much phosphorus and potassium should I look for in a fertilizer?

Many Florida soils are naturally high in phosphorus, so you should use a soil test to determine if you even need to apply this nutrient. Contact your county's UF/IFAS Extension office to get a soil test form and learn how to take one. If you have ample phosphorus in your soil, look for a fertilizer with no more than 2% phosphorus. As for potassium, look for a fertilizer with at least half as much potassium as nitrogen (16-2-8) or equal amounts of nitrogen and potassium (15-0-15), depending on the results of your soil test.

How much fertilizer should I apply to a lawn?

How much to apply depends on three things:

1. Your desired level of maintenance
2. The amount of nitrogen in the bag
3. What percentage of that nitrogen is slow-release

To get the maximum points based on FYN guidelines outlined in The Florida Yardstick Workbook, apply the lowest of the fertilizer ranges recommended by the UF Turf grass Science program. Understand that at times an underfertilized lawn may be less pest- or disease-resistant and unable to perform as well in preventing erosion. On the other hand, lawns receiving more fertilizer than recommended by FYN guidelines generally require more mowing, additional irrigation and may develop more pest problems. Regardless of the level of maintenance you desire, adhere to the following guidelines.

- If you are applying a fertilizer with less than 30% of its nitrogen in a slow-release form, only apply ½ pound of nitrogen per 1,000 square feet of lawn per application.
- If it has at least 30% slow-release nitrogen, you may apply up to 1 pound of nitrogen per 1,000 square feet of lawn per application.

For more help calculating the amount of fertilizer to apply to your lawn, see Tables 1 and 2 below. Regardless of the total nitrogen applied over a year, even at high maintenance levels, it is the amount of nitrogen applied at any one time and the proper application and watering-in that has the greatest impact on the potential for creating pollution.

How should I apply fertilizer to a lawn?

Follow these simple steps:

1. Determine the annual fertility needs of your grass by referring to Table 1 below
2. Measure the square footage of your lawn area. Do not include landscape plants in this area calculation.
3. Determine how much slow-release nitrogen is in your fertilizer.

Table 1. Fertilization Guidelines for Established Turf grass Lawns in Three Regions of Florida*

Species	Nitrogen recommendations (lbs N/1000ft ² /year)*		
	North	Central	South
Bahiagrass	2-3	2-4	2-4
Bermuda grass	3-5	4-6	5-7
Centipede grass	1-2	2-3	2-3
St. Augustine grass	2-4	2-5	4-6
Zoysiagrass	3-5	3-6	4-6

*Homeowner preferences for lawn quality and maintenance will vary, so we recommend a range of fertility rates for each grass species and location. Also, effects within a localized region (for instance, shade, drought, soil conditions, and irrigation) will require using a range of fertility rates. These recommendations assume that grass clippings are recycled.

- Refer to Table 2 (below) to find out how much fertilizer to apply to your lawn area, based on the percentage of nitrogen in your fertilizer product. These figures are based on ½ pound of soluble fertilizer per 1,000 square feet. If you are using a product with over 30% of nitrogen in slow-release form, double these amounts to apply 1 pound nitrogen per 1,000 square feet.
- Broadcast the fertilizer over the lawn with a drop spreader.

Table 2. Proper Application Rates for Specific Fertilizer Products*

Area (sq. ft.) % Nitrogen in Fertilizer Bag

	6%	10%	12%	15%	16%	23%	27%
10	1.3 oz3 TB	0.8 oz1 1/2 TB	0.7 oz1 1/2 TB	0.5 oz3 1/2 tsp	0.5 oz1 TB	0.4 oz2 1/2 tsp	0.3 oz2 1/4 tsp
50	6.6 oz14 TB	4 oz1/2 c.	3.3 oz7 TB	2.7 oz6 TB	2.5 oz5 1/4 TB	1.7 oz4 1/2 TB	1.5 oz1/4 c.
100	13.3 oz1 3/4 c.	8 oz1 c.	6.7 oz14 TB	5.3 oz3/4 c.	5 oz10 1/2 TB	3.5 oz9 TB	3 oz1/2 c.
1000	8.4 lbs17 1/2 c.	5 lbs9 1/2 c.	4.2 lbs8 3/4 c.	3.3 lbs7 1/4 c.	3.1 lbs6 1/2 c.	2.2 lbs5 1/2 c.	1.9 lbs4 3/4 c.
1500	13 lbs26 1/4 c.	7.5 lbs14 1/4 c.	6.5 lbs13 c.	4.9 lbs11 c.	4.8 lbs9 3/4 c.	3.3 lbs8 1/4 c.	2.9 lbs7 1/4 c.
3000	25.2 lbs52 1/4 c.	15 lbs28 1/2 c.	12.6 lbs26 c.	9.8 lbs21 3/4 c.	9.4 lbs19 1/2 c.	6.6 lbs16 1/2 c.	5.8 lbs14 1/2 c.
5000	42 lbs87 1/4 c.	25 lbs47 1/2 c.	21 lbs43 1/2 c.	16.4 lbs36 1/2 c.	15.8 lbs32 1/2 c.	11 lbs27 1/2 c.	9.8 lbs24 1/2 c.

*Homeowner preferences for lawn quality and maintenance will vary, so we recommend a range of fertility rates for each grass species and location. Also, effects within a localized region (for instance, shade, drought, soil conditions and irrigation) will require using a range of fertility rates. These recommendations assume that grass clippings are recycled.

One of the main things you can do to prevent pollution is to use caution when applying fertilizers.

- Do not spill fertilizer granules. If you do have an accident, sweep the granules up. Rinsing fertilizer off with a hose could send it down the storm drain.
- Do not spread fertilizer onto water bodies or impervious surfaces, such as driveways or sidewalks. Particles on hard surfaces can wind up in waterways.
- Use a drop spreader, which puts particles down directly beneath the spreader, rather than a rotary spreader, which flings particles a farther distance.
- Avoid using ðweed and feedö products that contain **herbicides** and fertilizer together. These products can injure some trees and shrubs. Tree and shrub root systems can extend far beyond the visible foliage, intermingling with turf. In addition, pesticides should be applied only to affected areas, rather than broadcast over the entire yard as occurs with a weed and feed product.
- Do not fertilize if heavy rain is forecast. This increases the potential for fertilizers to run off into storm drains or to leach through soil with the rainwater.
- In summer, when turf is actively growing, apply an iron source instead of a nitrogen fertilizer to green the lawn without increasing growth. Use **chelated** iron or iron sulfate.

When should I apply fertilizer to a lawn?

Some parts of Florida have year-round growing seasons; other parts have dormant lawns for parts of the year. Apply fertilizer when grass is actively growing, not when it is dormant. Do not apply too much nitrogen at one time in summer months when grass is already growing rapidly. Consult your county UF/IFAS Extension office with questions.

FYN GLOSSARY BOX

Herbicide: a chemical that kills plants or inhibits their growth; typically intended for weed control **Chelate:** a complex organic molecule that surrounds certain trace elements, such as iron, and keeps them dissolved in a solution.

How do I water-in fertilizer?

Most fertilizers need to be watered in to move fertilizer just below the soil surface to grass roots. This process requires only about ¼ö of irrigation water. To find out how long it takes your sprinkler system to deliver this much water, read the Florida Yard Tip, ðCalibrating Irrigation Systems,ö on page 45. Do not overwater or you increase the potential to move fertilizer past the root zone and into ground water. When fertilizing lawns, follow recommendations in the Florida Lawn Handbook, available for viewing at all county UF/IFAS Extension offices.

Fertilizing Woody Landscape Plants

In the soil, roots of trees, shrubs, turf grass and **bedding plants** intermingle and compete for water and nutrients. In fact, the roots of a single **mature tree** may extend 60 feet or more out into your lawn or flowerbeds. Fertilizer applied to one plant is often absorbed by the roots of a nearby plant. Every treatment you apply to your lawn (fertilizer and herbicide, for example) can impact your trees and shrubs. Conversely, treatments applied to a tree, such as pruning and fertilizing, can influence the appearance and health of underlying turf grass.

Table 3. Fertilization Guidelines for Established Landscape Plants

Level of Maintenance	Amount of Nitrogen(lbs. N/1000 ft ² /year)
Basic	0-2 lbs.
Moderate	2-4 lbs.
High	4-6 lbs.

FYN GLOSSARY BOX

Bedding Plants: herbaceous annual or perennial plants that are used in flower or vegetable gardens **Mature Tree:** a tree that has reached at least 75 percent of its final height and spread

In areas where tree or shrub fertilization zones overlap with lawn fertilization zones, fertilize for one or the other of the plant types, but not both. If trees and shrubs are not located near fertilized turf grass, you can apply additional nitrogen to enhance growth of established trees and shrubs. Refer to Table 3 for specific rate recommendations. Tables 2 and 4 (below) contain helpful information on calculating the amount of fertilizer to apply to a given area. Broadcast fertilizer uniformly over the desired areas of the landscape. Apply water-soluble fertilizers at no more than ½ pound of actual nitrogen per 1,000 square feet per application. Application rates of controlled-release fertilizers depend on release rates of the product.

Table 4. Equal Plant Bed Areas with Differing Shapes

Bed Area (sq. ft.)	Circle Diameter
10	3.6
50	8.0
100	11.3
1000	35.7

Fertilizing Palms

Palms have different nutritional requirements than other landscape plants. Fertilize landscaped areas within 30 feet of large established palms with a 4-1-6-2 Mg (N-P₂O₅-K₂O-Mg) ratio fertilizer (an 8-2-12-4 Mg is an example of a fertilizer using this ratio). Nitrogen, potassium and magnesium should have equivalent percentages of each nutrient in controlled-release form. If you use a fertilizer with a ratio other than specified, you may bring about or intensify nutrient deficiencies in palms. Base fertilization rates on Table 3 (see page 54). Palms are highly prone to several potentially fatal micronutrient deficiencies, so any fertilizer you apply to them should contain 1%–2% iron (Fe) and manganese (Mn), plus trace amounts of zinc (Zn), copper (Cu) and boron (B).

FLORIDA YARD TIP

Turf Fertilizer Apply granular grass fertilizer and slow-release fertilizer with a drop spreader. Both of these fertilizer forms are recommended for use on turf. Soluble powders, such as the kind used on houseplants, are dissolved in solution. This form is not recommended for lawns.

More Information

For more detailed information on how to properly maintain your lawn, including fertilizer schedules, disease, and pest management, please refer to the *Florida Lawn Handbook*, available for viewing at all county UF/IFAS Extension Offices.

For Additional Information:

For references on the information contained in this book and links to additional resources on each of the nine Florida-friendly landscaping principles, including many articles on the EDIS website (Electronic Data Information Source of UF/IFAS Extension), go to <http://fyn.ifas.ufl.edu> and follow the link to the FYN Handbook. You can also visit <http://FloridaYards.org> for more information on Florida-friendly landscaping, or contact your county's UF/IFAS Extension office and ask for the Florida Yards & Neighborhoods program. See <http://solutionsforyourlife.ufl.edu/offices.html> or check the government pages in your phone book to find your county's Extension office.