

## The Lawn Fertilizer Toolbox<sup>1</sup>

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Proper nutrition is essential for any living organism, and plants are no exception. Like all plants, the grass in your lawn requires water and specific nutrients in order to grow and stay healthy. While certain nutrients can be found in the soil, they aren't always present in the right amounts to support good plant health. The appropriate fertilizer applied at the correct rate and time can help maintain a healthy Florida-Friendly lawn, which can prevent soil erosion and reduce nutrient runoff and leaching. Think of fertilizer as a tool for delivering nutrients to plants. As with any tool, it's important that you understand how to safely use it.

The nutrients that are most important for keeping turfgrass healthy are the macronutrients nitrogen (N), phosphorus (P), and potassium (K). Macronutrients are required by plants in greater quantities than micronutrients. Of the micronutrients, iron (Fe) can also be an important management tool for specific situations in the landscape.

### Nitrogen (N)

Nitrogen is an essential element for life and growth, and it is the element turfgrass needs in greatest quantity to maintain a healthy groundcover. In plants, N is incorporated into amino acids (the

basis for proteins), is used in creating nucleic acids (RNA and DNA), and is part of chlorophyll, the principal pigment for photosynthesis. Chlorophyll is especially important because it provides plants with the ability to harvest light energy, which allows plants to generate their own energy through photosynthesis. Without N, plants will eventually die.

Nitrogen may come from many sources in the environment, such as the soil, organic matter, reclaimed water, pet wastes, and leaf clippings, but these sources rarely provide adequate levels of N to maintain a healthy lawn. Therefore, N must be periodically added in the form of fertilizer. Applying N to turfgrass causes a growth response and enhances chlorophyll production, which provides the deeper green color that many associate with a healthy lawn.

To ensure that your lawn receives the correct amount of N, follow UF/IFAS fertilization recommendations (Table 1). Be careful not to apply more N fertilizer than is needed to maintain a healthy lawn. Overfertilization can result in stressed or weakened turfgrass, increased incidence of disease, or environmental harm due to nutrient leaching or runoff into water bodies.

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## Phosphorus (P)

Because many Florida soils have sufficient levels of P to support turfgrass growth, supplemental P applications are not often required to maintain a healthy lawn. A soil test can tell you whether or not P is required. Your local county Extension service can provide directions and help for testing your soil.

Applications of both N and P are now regulated by the Florida Department of Agriculture and Consumer Services (FDACS) Urban Turf Fertilizer Rule (RE-1.003(2) FAC) and also by county or city ordinances in some areas. Be sure to comply with all state and local regulations when fertilizing your lawn.

## Potassium (K)

Potassium helps turfgrass withstand stresses, such as cold temperatures, drought, traffic, and shade. Potassium also aids in producing a deep root system that makes the grass stronger.

Look for a fertilizer with a ratio of N to K of at least 2:1 (e.g., 16:0:8, which has 16% nitrogen, 0% phosphate, and 8% potassium as potash). A higher ratio of K is also acceptable for a lawn fertilizer.

## Iron (Fe)

Iron is a micronutrient required for healthy turfgrass growth and maintenance. Micronutrients are essential to plant growth, but are needed in much smaller quantities than macronutrients. While Fe cannot substitute for the other required nutrients, it can be an important component of a fertilization regime, particularly in areas where the pH is high (greater than 7.0). This is because certain plants, including turfgrasses, can have difficulty taking up Fe from soils that have a high pH. A soil test will indicate the pH. In soils with high pH, a fertilizer with Fe may be needed to keep the grass green and healthy; however, this does not substitute for the other nutrients. Iron can make your lawn green because it is involved in chlorophyll biosynthesis, but it does not provide the proteins and amino acids that N does. Some homeowners may want to apply Fe in the summer to help keep their lawns green without creating the growth that N application would cause.

However, it's important to note that Fe is not a substitute for N.

## When to Fertilize

Only fertilize when the grass is actively growing since this is when the grass makes the best use of the fertilizer's nutrients. Fertilizer applied when the grass is dormant may not produce the desired response. In addition, fertilization during dormancy may cause the grass to grow at a time when it would not naturally do so, resulting in a weakened turfgrass. Fertilization during times of dormancy may also contribute to nutrient leaching or runoff since the grass has less root system and, therefore, less ability to take up the nutrients.

The University of Florida/IFAS recommends that homeowners fertilize following the guidelines in Table 1 based on their location in the state, grass species, and preference for the level of maintenance required. Based on these specifics, lawns should be fertilized between two and six times per year when the grass is actively growing. Active growth occurs from spring through fall in North and Central Florida and can be year-round in South Florida. Do not fertilize your lawn during the winter months if you are in a part of Florida where the lawn does not actively grow in the winter.

It's very important to fertilize within the range of rates recommended by IFAS to maintain a healthy Florida-Friendly lawn. Remember not to overfertilize. Too much N will result in excess shoot growth, meaning that you'll have to mow more frequently. Excess N can also cause the plants to be less tolerant to environmental stresses and diseases. Most importantly, applying too much N may result in nitrate leaching or runoff, which can lead to environmental problems for ground or surface waters.

## Conclusion

Remember to follow these other best management practices when fertilizing so that you can help reduce any nonpoint source pollution of water bodies from fertilizer:

- Never leave fertilizer granules on impervious surfaces. Always sweep up spills and put the spilled fertilizer back in the fertilizer bag or spread them onto the lawn.
- Always follow the IFAS fertilization recommendations and rates.
- Leave a 10 ft. unfertilized area around water bodies. (Professional fertilizer applicators have equipment that allows them to fertilize closer to water bodies than this.)
- Do not fertilize dormant (brown) turfgrass. Turfgrass is dormant when it's not growing, which is typically in the winter.
- Do not fertilize newly planted or seeded turfgrass for 30–60 days after planting.

**Table 1.** Nitrogen fertilizer recommendations for Florida turfgrass species

Species/location in Florida	Interim N recommendations (lbs 1000 ft <sup>2</sup> yr <sup>-1</sup> )*,**
Bahia grass – North	2–3
Bahia grass – Central	2–4
Bahia grass – South	2–4
Bermudagrass – North	3–5
Bermudagrass – Central	4–6
Bermudagrass – South	5–7
Centipedegrass – North	1–2
Centipedegrass – Central	2–3
Centipedegrass – South	2–3
St. Augustine grass – North	2–4
St. Augustine grass – Central	2–5
St. Augustine grass – South	4–6
Zoysiagrass – North	3–5
Zoysiagrass – Central	3–6
Zoysiagrass – South	4–6

\*Homeowner preferences for lawn quality and maintenance level will vary; therefore, a range of fertility rates is recommended for each grass and location. Additionally, effects within a localized region (i.e., microenvironmental influences such as shade, drought, soil conditions, and irrigation) will necessitate that a range of fertility rates be used.  
 \*\*These recommendations assume that grass clippings are recycled.