

The Do's and Don'ts (any Why's) of Fertilization

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Gardener's challenge: determining the proper fertilization rate for turfgrass. There's no magic, one-size-fits-all equation, and most of us judge the quantity of fertilizer needed by the color of our lawns. However, there are some specific guidelines to maintaining a lawn, and if you'll follow the basic do's and don'ts outlined here you'll be rewarded with an attractive, dense and healthy stand of turfgrass.

■ **DO** have your landscape's soil tested. A routine soil test will determine pH and nutrient availability required for plant growth. Pick up a soil-testing kit at your county Extension office. When you get the results, base your fertilization program on the strengths and deficiencies apparent in your soil profile.

Applying nutrients that are readily available in the soil is not only a waste of money; in some cases, it can actually cause problems. For example, in acidic or highly alkaline soils with high levels of phosphorus, the micronutrient iron is often "tied up" and unavailable to the plants. Continuing to apply fertilizer with a high level of phosphorus on this type of soil will only make the situation worse.



A soil test and careful fertilizing will keep your lawn looking green and healthy
Photo by Neil Sperry

■ **DO** use a 3-1-2 or 4-1-2 ratio fertilizer if you elect not to conduct a soil test. A common example of a 3-1-2 ratio fertilizer is 15-5-10, while a good 4-1-2 ratio fertilizer is 16-4-8. These ratios generally supply what most lawns need, and they won't dramatically increase the phosphorus levels if it's unneeded.



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Recommended Number of Applications Per Year

Turfgrass	Late winter	Spring	Early summer	Late summer	Fall	Early winter
Common bermudagrass		X	X	X	X	
Hybrid bermudagrass		X	X	X	X	
St. Augustinegrass (sun)		X	X			X
St. Augustinegrass (shade)		X				X
Zoysiagrass		X				X
Centipedegrass		X*				X*
Buffalograss		X*				X*
Tall fescue	X	X			X	X

*Buffalograss and centipedegrass will do fine if they're fertilized only once a year. That one application could be made either in fall or spring. However, fall is the best time to make just one annual application.

Recommended Rates of Nitrogen Fertilizer

(Pounds of nitrogen per year per 1,000 square feet)

To determine the rate needed, calculate by this method: Divide 100 by the nitrogen analysis listed on the fertilizer bag (the first number in the analysis). The answer will tell you the pounds of nitrogen per 1,000 square feet that are needed to provide 1 pound of actual nitrogen per 1,000 square feet.

Turfgrass	Nitrogen
Common bermudagrass	4 - 5
Hybrid bermudagrass	5 - 6
St. Augustinegrass (sun)	3 - 4
St. Augustinegrass (shade)	2 - 3
Zoysiagrass	1 - 2
Buffalograss	1 - 2
Centipedegrass	1 - 2
Tall fescue	3 - 4

Many of our soils in Texas have moderate to high levels of phosphorus and potassium in them. On these soils, the application of a 1-0-0 ratio fertilizer is appropriate during spring and summer. In fall, use a balanced fertilizer such as 15-5-10. Note: If using a 1-0-0 ratio, try to find a fertilizer that has at least 50 percent of its nitrogen in a slow-release form.

■ **DO** apply the correct rate of nitrogen annually for the turfgrass growing in your lawn. Each type of turf requires a specific rate. The chart, above, contains the recommended rates of nitrogen per 1,000 square feet per year for the most common turfgrasses. Applying the correct rate of nitrogen will help ensure a healthy stand of turf.

Other factors such as sun and shade can affect the recommended rates of nitrogen fertilization. For example, plants growing in shade need less fertilizer than plants growing in full sun. Shaded plants naturally have a shallow root system, and any over-stimulation of top growth can lead to further decline of the root system. If the recommended rate of nitrogen is 4 pounds per 1,000 square feet per year in full sun, then in moderate to heavily shaded areas you must reduce the nitrogen rate to 2 to 2½ pounds of nitrogen per 1,000 square feet per year.

As foot traffic increases, the turfgrasses' need for fertilizer increases. If your lawn is the neighborhood football field, increase the recommended rate of fertilization slightly.

■ **DO** select a fertilizer that has at least 50 percent of its nitrogen source in a slow-release form. Using a fertilizer that has all its nitrogen in a soluble (readily available) source can create too much quick and lush growth. This excessive growth can lead to serious lawn problems such as thatch, decreased root depth and low resistance to diseases and harmful insects.

Special notes: You can grow healthy turfgrass with an all-soluble nitrogen source if you wish to apply fertilizer every three or four weeks at a light rate. However, most homeowners don't want to fertilize their lawns this often. Examples of slow-release nitrogen sources include: sulfur-coated urea (SCU), urea form-aldehyde (UF), methylene urea (nutralene), Isbutylidene diurea (IBDU) and polymer-coated urea (PCU). Using one of these materials as a slow-release nitrogen source will produce a more uniform growth that doesn't cause problems.

■ **DO** apply fertilizer at the correct time of year. For warm-season turfgrasses such as bermudagrass, St. Augustinegrass and zoysiagrass, this means making your first application in spring, when grasses begin to green up and grow.

Special notes: For warm-season turfgrass such as buffalograss and centipedegrass, fertilize in late spring to early summer for the first application. Then fertilize according to the different turfgrass requirements. The last application of fertilizer on warm-season turfgrasses should be in mid- to late fall. See the chart, above, for the recommended number of applications per year for the different turfgrasses.

For cool-season turfgrasses such as tall fescue and bluegrass, make the heavier applications in fall and early winter, and then make light applications in late winter and late spring. One of the worst things you can do to a cool-season turfgrass is to over-fertilize in spring. Doing so creates excessive top growth at the expense of the plants' root systems. Turfgrass plants then

go into the hot, dry summer with shallow root systems. This is one of the major reasons cool-season turfgrasses struggle to make it through Texas's hot, dry summers.

■ **DON'T** over-fertilize or under-fertilize your lawn. Under-fertilization can be just as detrimental. It can lead to an increase in disease problems such as dollar spot and rust. These diseases, in turn, may weaken turfgrass plants, making them more susceptible to stress, insects, other diseases and weeds. Refer to the chart at left for the recommended rates of nitrogen fertilization for the different turfgrasses.

■ **DON'T** apply fertilizer when the plants can't use the nutrients. For example, don't fertilize bermudagrass while it's dormant.

Another problem with applying fertilizers at the wrong time of the year is increased leaching of nutrients into groundwater. Never scatter fertilizer across hard surfaces such as streets, sidewalks and driveways. It will wash easily into storm sewer systems and may eventually make its way into groundwater, thus increasing the levels of nitrogen and phosphorus in groundwater.

■ **DON'T** always purchase the most inexpensive fertilizer. Some of the lower-priced products don't contain slow-release nitrogen. When purchasing a fertilizer, look for the amount of slow-release nitrogen listed on the bag's label. Examine the uniformity of particle sizes and the amount of dust in the bag. Fertilizers with a wide range of particle sizes and density-plus a lot of dust-are difficult to spread uniformly. Pay a little more to be certain you're getting a fertilizer that not only provides consistent growth, but also will be easy to spread uniformly on the lawn.

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