



Lawn Fertilization for Texas Warm-Season Grasses: Frequently Asked Questions

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Nutrient management for Texas lawns

This publication focuses on helping home consumers understand how to best fertilize warm-season lawn grasses. The warm-season grasses include:

- Bermudagrass
- Buffalograss
- Centipedegrass
- St. Augustinegrass
- Zoysiagrass

The goal with any of these lawn grasses is a dense healthy lawn that provides aesthetic and environmental benefits. Turfgrasses need adequate nutrients to maintain these benefits. These nutrients may be supplied from soil minerals, soil organic matter, returned grass clippings and added inorganic or organic fertilizer. However, fertilizer should be applied at measured rates, according to need, at times when the lawn grass can best use the applied nutrients. Improper application rates or poor timing may contribute to nutrient enrichment of surface water and/or groundwater in "at risk" watersheds. This risk is greatly reduced by applying fertilizer in a manner that minimizes the potential for nitrogen (N) and phosphorus (P) runoff or N leaching. A well-planned and environmentally sound turfgrass fertilization program will take into account:

1. Turfgrass species and variety
2. Existing soil fertility
3. Use of soil test recommendations
4. Nutrient source characteristics
5. Desired turfgrass quality/performance
6. Nutrient application rate
7. Application frequency

8. Season of application
9. Application method.
10. Weather conditions.

The objective of this publication is to help Texans effectively fertilize lawn turf in a measured and environmentally sound manner.

What if I don't fertilize?

Without fertilization your lawn is likely to gradually thin and weeds may invade. Proper and timely fertilization can be good for both your lawn and the environment. There is less chance for nutrient runoff and soil erosion to surface waters from a healthy stand of grass than from bare soil or thin grass. Healthy lawns will have less disease, insect and weed problems, reducing the need for pesticide applications. Well-maintained lawns look appealing and are more wear tolerant.

How do I create a lawn I will like?

A good healthy lawn is one that persists from year to year with reasonable amounts of fertilizer and irrigation when needed. These are the two practices that really determine how much work it is for the home consumer to take care of their lawn. Finding an appropriate level of fertilizer application, irrigation frequency and mowing to maintain good lawn density is the first goal. If the lawn is dense, it will resist weed invasion and will also likely have a pleasing green color and a uniform appearance. Lawns do not have to be dark green to be healthy. In fact lawns with excess levels of N often require more frequent irrigation and mowing. Additionally, irrigation, aeration, and controlling pest activity may at times enhance quality. Management levels can be broadly defined as:

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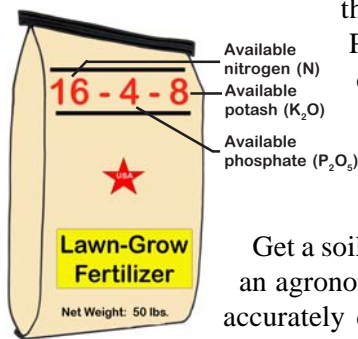
- **Low** – the minimum level of management required to maintain turf density
- **Moderate** – management required for enhanced visual appearance and quality
- **High** – management needed for lawn areas with greater expectations (highly visible, recovery from traffic/use)

How do I know if my lawn needs fertilizer?

The best way to determine if your lawn requires certain plant nutrients is to get the soil tested. Soil test forms and instructions are available through your local County Extension Office or can be found by visiting <http://soiltesting.tamu.edu/> (the Texas A&M Soil Testing Laboratory). Obtaining a soil test is easy and inexpensive. The results returned to you will include recommendations on the amounts of plant nutrients that would be beneficial to your lawn. Soil tests determine the amount of nutrients in the soil available for plant use. Nutrients found in high to very high amounts need no additional application. Nutrients found to be deficient in the soil will result in a recommendation that fertilizer containing those nutrients be applied.

What if I do not have a soil test?

Apply N using a fertilizer analysis (the three numbers that appear on the fertilizer package that represent N-P₂O₅-K₂O)



that is 4 to 6 parts N, 1 part P₂O₅ and 2 to 4 parts K₂O. For example, a 16-4-8 fertilizer analysis would fall within this range with a 4-1-2 ratio of these nutrients.

Get a soil test as soon as possible from an agronomic soil testing laboratory to accurately determine nutrient needs for future fertilizer application.

What is the best fertilizer for my lawn?

- ✓ One that provides available P and/or K only if recommended by soil test (do not apply P without the aid of a soil test)
- ✓ One that provides only N when P and K levels are adequate.

Measure that Lawn!

Many home consumers do not know the size of their lawn area before they visit the garden center to purchase fertilizer (and other lawn care products). This often leads to misapplication and inconsistent results. Knowing the size of the lawn is the basic principal of “measured” lawn care, which is environmentally sensitive! Start by measuring each lawn section in square feet. Then add up the sections to arrive at the total size of the lawn in square feet. This publication will recommend fertilizer application based upon the amount of product to apply per 1,000 square feet. The GREAT thing is that one only needs to accurately measure the lawn once and then they have it when they go to the garden center. It also helps to gauge how much product to apply as you go around the lawn as will be discussed later. Home consumers who know the size of their lawn are much more likely to purchase and apply the correct amount of fertilizer and pesticides. It’s the first “step” to measured lawn care!

Annual Nitrogen Fertilizer Programs

For Texas lawns it would be appropriate to apply low annual rates of N once in the spring and, if needed, again late season, no later than six weeks before expected frost. Split fertilizer applications are recommended. Moderate and high annual N programs will likely require additional supplemental N applications.

Annual program	Nitrogen fertilizer application frequency and scheduling
Low	Apply N during the spring and/or late growing season period. This program works where 1 or 2 applications are deemed adequate
Moderate	Builds upon the “Low Level Program” applications with 1 additional supplemental summer application to enhance turf density and overall quality.
High	Builds upon the “Low Level Program” applications with 2 to 3 supplemental summer applications to enhance quality as needed.

Annual nitrogen needs based on grass type and management level?

Some grass species do well with low to moderate amounts of applied N. Other grass species (e.g.; the hybrid bermudagrasses) often require moderate to high levels for acceptable quality. Refer to Table 1 below for reference levels of N for each grass species.

Table 1. Annual Nitrogen Recommendations for Texas Warm Season Lawns Based Upon Management Level

Warm Season	Lawn Management Level		
	Low	Moderate	High
	<i>lbs. N applied per 1,000 sq. ft. per year</i>		
Bermudagrass (common)	2	2-3	4-5
Bermudagrass (hybrid types)	2	3-4	5-6
Buffalograss	0-1	2	NR*
Centipede 0-1	1	2-3	NR*
St. Augustine (sun)	2	2-3	3-4
St. Augustine (shade)	1	1-2	NR*
Zoysiagrass	1-2	2-3	3-4

*NR = not recommended

Any other tips I should know?

1. The lower N rate programs are appropriate for lawns in environmentally sensitive sites in addition to low maintenance lawns.
2. Areas in moderate to heavy shade will likely perform well with only early season and late season applications.
3. St. Augustinegrass lawns in high pH soils may benefit from applications of iron sulfate or iron chelate to prevent severe iron chlorosis (yellowing). When applied as needed, this results in short term green up for a few weeks, and a healthier lawn
4. Iron products can stain sidewalks and driveways and should be swept off promptly after application.
5. Do not apply fertilizer to sidewalks, driveways and curbs. If fertilizer gets on hard surfaces, sweep, don't hose it back into the grass. This will prevent run-off.
6. Do not fertilize before rain to avoid runoff.
7. Irrigate fertilizer applications with a normal irrigation cycle so the nutrients enter the soil to prevent runoff.
8. Soil test every 2 to 3 years.
9. Make timely applications when the grass can use the fertilizer - see the Tables 3 and 4. Supplemental applications take place between the early and late season applications. Therefore, annual programs (Refer to Table 1 for reference levels of N for each grass species) would likely fall under either the low, moderate or high N program.

How do I select the right fertilizer?

There are many types of nutrient analyses and sources. All fertilizer packages must have three numbers present on the package (such as 16-4-8). These numbers represent the

percentage of nitrogen (N), phosphorus (as P₂O₅), and potassium (as K₂O) present by weight (also called the N-P₂O₅-K₂O ratio).

For example, let's use a 40-pound bag of 16-4-8. The percentage and pounds of each nutrient supplied in the 40 lb bag is:

$$\begin{aligned} \text{Nitrogen (N)} &= 16\% \times 40 \text{ lbs of fertilizer} \\ &= 0.16 \times 40 \text{ lbs of fertilizer} \\ &= 6.4 \text{ lbs N} \\ \text{Phosphorus (P)} &= 4\% (1.6 \text{ lbs of P}_2\text{O}_5) \\ \text{Potassium (K)} &= 8\% (3.2 \text{ lbs of K}_2\text{O}). \end{aligned}$$

While these three nutrients are necessary for proper growth of all plants, many soils already have enough P and K. Your soil test report will help you understand which nutrients your soil is lacking and those that are present in adequate amounts. Typical N recommendations might suggest applying 1/2 to 1 pound of actual N per 1,000 square feet per application. To do so using a 16-4-8 fertilizer, you would need to apply between 3.2 (at 1/2 lb N per 1,000 sq ft) and 6.4 pounds (at 1 lb N per 1,000 sq ft) of the fertilizer since it is 16% N by weight. This application would also apply a proportional amount of P and K per 1,000 square feet. Table 2 shows how fertilizer application per 1,000 sq. ft. depends on the N analysis and desired N application rate per 1,000 sq. ft.

Table 2. Using Fertilizer Nitrogen Analysis to Calculate How Much Fertilizer to Buy and Apply

Fertilizer Bag Reads ¹	Amount of fertilizer to apply per 1000 sq. feet	
	1/2 lb N rate	1 lb N rate
6-?-?	8.3 lbs	16.6 lbs
8-?-?	6.2 lbs	12.5 lbs
9-?-?	5.5 lbs	11.1 lbs
15-?-?	3.3 lbs	6.6 lbs
20-?-?	2.5 lbs	5.0 lbs
21-?-?	2.4 lbs	4.8 lbs
29-?-?	1.7 lbs	3.4 lbs

¹ The fertilizer analysis to include P₂O₅ and K₂O should be determined by soil test.

How to use Table 2: An application rate of 1/2 or 1 lb. of N per 1,000 square feet is obtained by:

1. Find the fertilizer analyses in the first column.
2. Select the application rate column; 1/2 or 1 lb per 1,000 sq ft.
3. Find the number of pounds of fertilizer product to buy for each 1,000 sq ft of lawn area in the second or third column opposite the N analysis in your fertilizer.

See the fertilizer calculator on the web at <http://aggie-turf.tamu.edu/answers4you/turfcalkulators.htm> for additional help. Fertilizer products needed to apply 1 lb of actual N are calculated just like this example:

- For a 16-4-8 fertilizer: The first number (% N) on the bag is 16 % N.
- Calculate lbs. of applied N per 1,000 sq. ft. by dividing the amount of N you want to add (1 lb. of N in most cases) by the % N (16 % in this case)
- 1 divided by 0.16 = 6.2 lbs. of fertilizer to apply 1 lb. of N per 1,000 square feet. To use a 1/2 lb per 1,000 sq ft rate, divide 0.5 by 0.16 which equals 3.1 lbs of fertilizer.
- If you have a 5,500 square foot lawn, multiply the area (5,500/1,000 square feet or 5.5 units of 1,000 sq. ft.) by 6.2 lbs. and get 34.1 lbs., round to 34 lbs. of fertilizer to apply 1 lb. N per 1,000 sq. ft. to your lawn.

- 8 months in the Southeast
- 10 months in the Valley.

Spring Fertilizer? The first N fertilizer application to warm-season grasses should begin after the grass has greened up and required mowing several times. This indicates the grass is actively growing and can readily use applied N. This will be after the expected date of the last spring frost (Table 3). Once a lawn is maintained on an appropriate annual N fertilizer program there is usually enough residual spring N to maintain grass through several mowings. The first application of fertilizer should be made after the second or third mowing of the lawn grass. Mowing weeds doesn't count!

Table 3. Recommended spring timing for nitrogen fertilizer for Texas cities within the same spring frost zones (Figure 1).

Texas Cities	Average last spring frost dates ¹	First N application after ²
Harlingen, McAllen	No Freeze	March 1
Corpus Christi, Laredo	Jan. 30	March 15
Houston, Victoria	Feb. 14	April 1
Austin, San Antonio, Waco	March 1	April 15
Abilene, Dallas, El Paso	March 16	May 1
Lubbock, Midland	March 31	May 15
Amarillo	April 15	June 1

¹ These dates are average across large areas of Texas. Frost dates may differ for some locations. The dates of the last spring frost is about the time warm-season lawn grasses start to "green-up".
² Nitrogen fertilizer is delayed until the grass is actively growing with the onset of warmer temperatures.

When is the best time to fertilize for my Texas location?

It depends on the type of grass you are growing and the lawn appearance (e.g.; color, density, uniformity) you desire. It is best to fertilize when grass is actively growing and can take up the fertilizer. Fertilizer is best applied during the growing season. Yet this application window will differ for the different climatic regions in Texas. The growing season is often measured as the period between the last spring (Figure 1) and first autumn (Figure 2) frost dates. Longer growing seasons may need greater annual amounts of nitrogen fertilizer to sustain lawn quality. The average growing seasons for the different climatic regions in Texas are:

- 5 1/2 months in the Panhandle;
- 6 1/3 months in the West
- 6 1/2 months in the Northeast;
- 7 3/4 months in Central;

Figure 1. Average dates for the last spring frost.

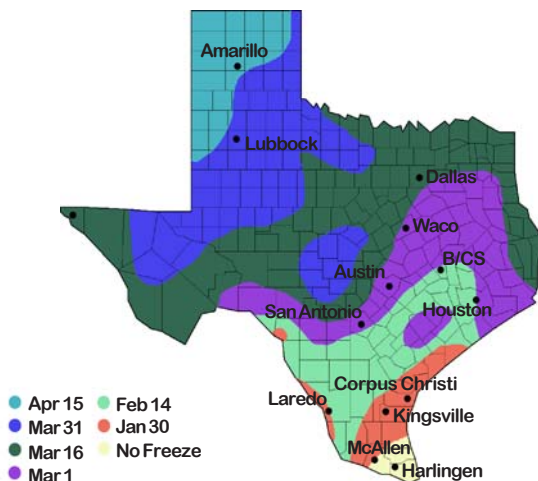
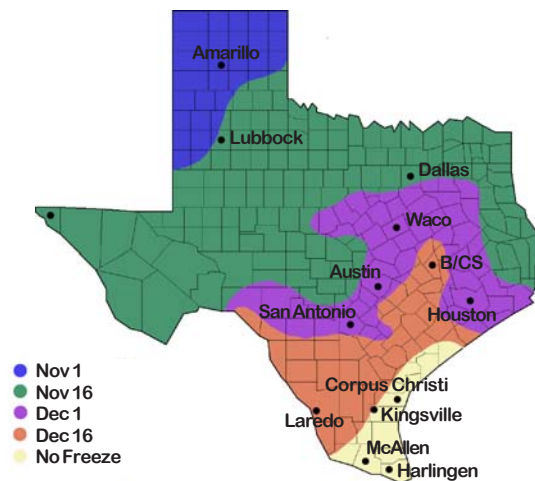


Figure 2. Average dates for the first autumn frost.



Fall Fertilizer? Nitrogen application is important during this period to increase density to resist winter weeds, improve fall color and spring recovery. Modest N rates (1 lb. per 1,000 sq. ft. or less) provide benefit, and reduce potential N carryover and potential leaching during winter months. The dates by which to apply your last fertilizer application are listed by growing season in Table 4. Soluble, readily available sources are preferred in this application.

Table 4. Recommended “cut-off” dates for late-season nitrogen fertilizer for Texas cities within the same autumn frost zones (Figure 2).

Texas Cities	Average first autumn frost dates ¹	Apply N by this date ²
Harlingen, McAllen, Corpus Christi	No Freeze	November 1
College Station, Laredo, Victoria	December 16	November 1
Austin, Houston, San Antonio, Waco	December 1	October 15
Abilene, Dallas, El Paso, Lubbock, Midland	November 16	October 1
Amarillo	November 1	September 15

¹ These are averages across large areas of Texas. Frost dates may differ for some locations.

² The final late-season N application should be applied no later than 6 weeks before the expected autumn frost date.

What about fertilizer during the summer? Supplemental N applications (if desired) are spaced at least 45 to 60 days apart. Newly established or previously neglected lawns can benefit from summer applications. Slow release N sources are particularly suited for summer fertilizer applications to prevent surges of lush growth and the need for more frequent mowing. Slow release N sources can also be used for spring N application.

What is the best way to apply fertilizer?

Applying fertilizer in measured amounts: methods and equipment.

Nitrogen fertilizer will “green-up” a lawn. Therefore, it is important to uniformly apply N-containing fertilizers. This will eliminate streaking caused by different shades of green turf in the lawn. Proper application of N fertilizers by hand is difficult, even for a trained professional. Drop-type or rotary spreaders should be used.



When using drop-type spreaders, be sure to overlap the wheel tracks, since all the fertilizer is distributed between the wheels. Drop-type spreaders are not as easy to maneuver around trees and shrubs as rotary spreaders.

Rotary spreaders usually give better distribution where sharp turns are encountered because they tend to cover a broader swath and fan the fertilizer out at the edges of the swath. It is advisable to apply one half of the material in one direction and the other half in a perpendicular direction until one is experienced with a spreader. This will minimize streaking. Avoid application of any fertilizer to non-grassed areas (driveways, roads or bare soil) since it is then prone to runoff into drainage ways and then to surface and groundwater. Other spreader tips include: 1) don’t fill spreaders with fertilizer while on the lawn – spills can burn the grass; 2) always be moving when you open the spreader gate to apply fertilizer; and 3) always close the gate when making sharp turns with spreaders to avoid higher applications on the inside of the turn and lighter application to the outer part of the turn.

A Practical Tip: Getting a uniform application of fertilizer is often easier if the analysis is near or less than 20% N content. A 20% N fertilizer results in 5 lbs. of fertilizer product being spread over 1,000 sq ft to apply 1 lb of actual N. And if you only wish to apply 1/2 lb of N then that would reduce the fertilizer applied to 2 1/2 lbs per 1000 sq ft. This is difficult to spread uniformly. So lower analysis fertilizers allow for a better distribution of fertilizer, especially at rates less than 1 lb of N per 1000 sq ft. Products that have high N analysis do not allow for as much “margin of error” in application and this may be a help to home consumers attempting to learn how to best apply fertilizer.

A very simple method of applying measured amounts of fertilizer involves the following:

- Measure each section of your lawn in sq. ft. You only have to do this once. It is needed to apply “measured amounts” of fertilizer to a known lawn area.
- Calculate how much of the selected fertilizer product you wish to apply per 1,000 sq. ft. Refer to Table 2.
- Weigh out only the amount of fertilizer needed for a section of lawn. For example 9-?-? would need 11 lbs of fertilizer to apply 1 pound of actual N per 1,000 sq. ft. Therefore, an area measuring 2,000 sq .ft. would need 22 lbs. of 9-?-? fertilizer placed in the spreader. The bathroom scale and a large bucket are all the tools you need to weigh the fertilizer in “measured amounts”!
- Cut back the spreader setting to the smallest opening that still enables a good distribution pattern from your cyclone spinner spreader or drop spreader.
- Apply the measured amount of fertilizer by using the spreader to apply the amount at right angles, repeating until the measured amount of fertilizer is gone. This may take 3 or four passes but it is simple to do and results in a more uniform application.

Are there other factors to consider to use fertilizer wisely on my lawn?

Watersheds and Nutrient Management: At-risk watersheds need appropriate nutrient management to reduce the loss of P (runoff) and N (runoff and leaching) from landscapes, which might readily impact water quality within the watershed. This may include karst landscapes (formed on limestone rock with porous rock channels that enhance subsurface water flow), highly sloping soil features, soils with shallow depths to water tables or highly leachable soils. Nutrient management implies appropriate stewardship of our environment and is part of the “best management practice” philosophy in agriculture and residential and commercial landscapes

Soil Type - Sandy soils have the potential to leach more N than silt loam, clay loam or clay soils. Heavy clay soils do not readily leach nutrients. Therefore, smaller more frequent N applications are often required in sandy soils when quickly-available sources of N are used. Leaching potential is minimized through use of a slowly available N source or by applying light rates (1/2 lb N or less). This greatly reduces possible contribution to the problem of N enriched water in nearby streams and lakes.

Age of the lawn. Newly established lawns or lawns lacking density or ground cover will benefit from properly timed applications of N until ground cover and density have reached a desirable level. New lawns will likely require a bit more N fertilizer the first year or so after planting. Mature, well-established lawns require lower levels of N than recently planted lawns.

Shade - Grasses growing in heavily shaded areas require only 1/2 to 2/3 as much N as grasses growing in full sun. Shade also affects the timing of N applications. Since grass plants in shade can best use N when sunlight can reach the grass leaves, fertilizer applications are best applied to a shade tolerant warm season grass like St. Augustinegrass in early and late season applications.

Recycling Grass Clippings – Significant amounts of N, P and K are returned to a lawn when clippings are recycled using a mulching mower. Recycling turfgrass clippings contributes very little to thatch, provides nutrients and organic matter and is an environmentally friendly method of clipping disposal. If clippings must be removed, higher rates of N and K applications may be necessary.

Fertilizer “Burn” – “Foliar burn” describes the brownish discoloration that can occur on grass blades as a result of contact with soluble fertilizer. The fertilizer salts can draw moisture out of leaves and roots, leaving behind a browned-

off appearance. It is more of a problem when using ammonium sulphate and urea. It is avoided by applying fertilizer at reasonable rates when the lawn is dry. It is also good practice to water in the fertilizer with a normal irrigation cycle soon after the application.

Traffic Or Pest Injury- Where heavy traffic or use is anticipated, additional applications of properly timed and measured amounts of N can be beneficial in helping lawns recover from wear or pest damage.

Micronutrients – Micronutrient needs are also determined by soil tests. These nutrients are needed in much smaller amounts. Micronutrients are seldom deficient in home lawns. Periodic soil tests will identify these deficiencies. Iron deficiency may occur in St. Augustinegrass lawns in high pH soils. “Tip 3” on page 3 provides a bit more information to correct this problem.

Liquid Fertilizer Products. Garden centers typically stock fertilizer products that come in one-quart containers that are meant to fit on the end of the hose and are applied using the hose-end-sprayer method. The fertilizer contained in such products is based upon a percent by weight of the nutrient, just as in granular fertilizers. To know how much fertilizer is in the product solution, one needs to know how much the volume of liquid weighs. The weight of water is 8.34 lbs. per gallon. Adding soluble fertilizer nutrients to water will make it heavier. If you had a 1-quart container that weighed 3 pounds with a fertilizer analysis of 10-?-?, that would mean 10% of the weight would be N and equal 3/10 of a pound of actual N. These products, even though they are made up of readily available N sources, are a more expensive way to fertilize than their granular counterparts. A word of caution! Liquid N fertilizers are much more likely to “burn” lawns, especially in summer months, when applied at rates above 1/2 to 3/4 lb of actual N per 1000 sq ft. However, they can come in handy when fertilizing small areas at light rates. To apply liquid fertilizer from a hose end sprayer, it would be good to know the area you will cover and practice with an equal amount of water to achieve a uniform application.

Look for what type of nitrogen is in the fertilizer. The source of N in fertilizers influences N availability and turf response. There are two categories of N sources; quickly available and slowly available. Quickly available materials are water-soluble and can be readily utilized by the plant, resulting in faster green-up. They are also susceptible to leaching and have a relatively short period of response of 4 to 6 weeks. Quickly available sources include urea, ammonium sulfate and ammonium phosphates. Slowly available N sources release their N over extended periods of time and are applied less frequently and at somewhat higher rates than the quickly available N sources. Slowly available

sources are less susceptible to leaching and are preferred on sandy soil types, which tend to leach. They are preferred in environmentally sensitive areas; an example being in some areas of Central Texas, where shallow soils overlay fractured limestone leading to the aquifer. Slowly-available sources include: urea formaldehyde (UF), UF-based products (methylene urea), sulfur coated urea (SCU), polymer-coated urea, IBDU (an abbreviation for the chemical name of isobutylidene diurea). Natural organics (fish meal, dried blood, animal manures) and activated sewage sludge are sometimes referred to as slow-release fertilizers. However, with warm soil temperatures these products are broken down rather quickly. If a fertilizer contains a slow release N source it will be listed on the label. *However, Texas fertilizer labeling rules currently require that only 15% of the total N need be in a slow-release source to be labeled and marketed as a slow release fertilizer! This can be misleading if one does not look closely at the fertilizer label to evaluate N availability.* For UF-based fertilizers, the portion of the N that is slowly available is listed on the fertilizer bag as Water Insoluble Nitrogen (WIN). For instance, a 20-10-10 fertilizer with 5% WIN has 5/20 or 1/4 of the N in the slowly available form. If you chose a fertilizer, which provides N in a slowly available form, you should understand how to calculate WIN to use fertilizer effectively.

Reading the fertilizer label. For example, assume that a fertilizer label provides the following information:

Guaranteed Analysis

Total Nitrogen	16%
5.6% Water Insoluble Nitrogen (WIN)	
Available Phosphoric Acid (P ₂ O ₅)	4%
Soluble Potash (K ₂ O)	8%

To find the % N that is WIN, use the following calculation:

$\% \text{ WIN divided by } \% \text{ total N} \times 100 = \% \text{ of total N that is WIN}$

Therefore:

$5.6/16 \times 100 = 35\%$ of the total N is WIN, or slowly-available, and this fertilizer would provide 65% of the N in a readily available form.

If WIN or other slowly available sources are not listed on the fertilizer label, one should assume it is all water soluble or quickly available N. The N makeup in lawn fertilizers impacts product cost and use. Understand that:

- Slow release N sources cost more than readily available N sources.
- Home consumer products range from being all readily available to containing only up to 1/3 of the N as slow release to keep costs down.
- Slow release N sources are commonly mixed with other types of N fertilizers. Reading the fertilizer label will help you know what is actually in the packaged product.
- Sulfur coated urea (SCU) and polymer coated urea (PCU) fertilizers can vary greatly in how they are formulated to release N.
- Fertilizer products are typically made so the consumer sees the grass green-up soon after application.
- For slow release fertilizers to express the benefits associated with their use, slow release N component should be at least 50% of the total N.
- An additional advantage of using N fertilizers with 100 % of their N as slowly available nitrogen sources is that they can be applied somewhat at higher rates, which reduces the total number of times the fertilizer must be applied.

If the fertilizer contains sulfur-coated urea, polymer-coated urea, or other slow-release sources, include that portion as being similar to water-insoluble N when determining the amount of N that is slowly available. Statements on a fertilizer bag such as “contains 50% organic fertilizer” do not mean the fertilizer is 50% slowly available. Calculation of WIN as noted above or determination of the amount of another slowly available N source is the only reliable method of determining the portion of fertilizer N that is slowly available.

Summary

After choosing the appropriate fertilizer for your lawn, you should then determine the amount and frequency of fertilization that is proper. This will be influenced by the quality desired, source of N, soil type, type of turfgrass, length of growing season, traffic, shade, and whether clippings are recycled. Evaluate your lawn situation based on these factors and how each affects the amount and frequency of N application. Choose the amount and frequency that best suits your site.