TEXAS A&M AGRILIFE EXTENSION

**Palo Pinto County Agriculture and Natural Resources Newsletter**

# Spring 2021

# Fertilizing Texas Lawns

## 10-Point Checklist for Warm-Season Grasses

Ecological Turf Tips

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This checklist can help you make decisions on fertilizing your lawn so that it will be healthy and attractive yet minimize the damage to your pocketbook or the environment.

◊ **1. Determine the amount of work and money you want to spend on managing your lawn.**

Management levels can be broadly defined as:

**Low:** the minimum level of management required to maintain turf density.

**Moderate:** the level required for enhanced visual appearance and quality.

**High:** the level needed for lawn areas that are highly visible or must withstand high traffic or use.

◊ **2. Measure your lawn and refer to its size when buying lawn care products.**

If you know the size of our lawn, you are less likely to buy and apply too little or too much fertilizer. It's the first step to measured lawn care.

Start by measuring each section of your lawn in square feet (fig.1). Then add up the sections to arrive at the total size of the lawn in square feet.

Lawn care products are usually recommended and applied in measured amounts per 1,000 square feet.

◊ **3. Test the soil every 2 to 3 years. Soil tests are available from your county Extension office or from the Web at http://soiltesting.tamu.edu/.**

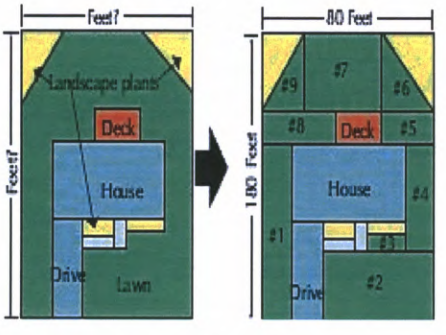


**Figure 1.** *This lawn has been divided into nine sections so that the square footage can be calculated easily and accurately.*

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## UPCOMMING PROGRAMS

- **April 20, 2021 - Jacksboro**

Multi County Soil Fertility Program

- **April 27, 2021 - Jacksboro**

Multi County Lawn Maintenance Program

- **April 30, 2021 - Stephenville**

Multi County Land Symposium

## ❑ 4. Choose a fertilizer product based on the soil test recommendations.

If you do not have a current soil test, apply nitrogen using a fertilizer analysis ratio (the three numbers that appear on the fertilizer package) that is four to six parts nitrogen (N), one part phosphorus (expressed as available phosphoric acid, or $P_2O_5$) and two to four parts potassium (expressed as soluble potash, or $K_2O$)

To determine future needs, have your soil tested before the next fertilizer application.

## ❑ 5. Match the annual nitrogen application program to your grass type and level of work and inputs.

The level of management needed—low, moderate or high—is based on the needs of the type of grass (Table 1) you have and your expectations for your lawn. In Texas, warm-season grasses include Bermudagrass, buffalograss, centipedegrass, St. Augustinegrass and zoysiagrass. The nitrogen requirements differ for each type.

The amount of nitrogen your lawn needs annually should be split into single applications of 1 pound of nitrogen or less per 1,000 square feet.

**Low annual program:** Apply nitrogen during the spring and/or fall. This program works where one or two applications are deemed adequate.

**Moderate annual program:** Make the applications listed in the low annual program as well as one supplemental summer application to improve turf density and quality.

**High annual program:** To enhance quality as needed, make two to three supplemental summer applications in addition to the applications listed in the low annual program.

## ❑ 6. Know how much fertilizer to apply in any single application by using Table 2.

1. Find the fertilizer analyses in the first column.
2. Select an application of ½ to 1 pound of fertilizer per 1,000 square feet of lawn.
3. Find the number of pounds of fertilizer product to buy for each 1,000 square feet of lawn area opposite the nitrogen analysis in your fertilizer.

*Note: The fertilizer analysis listed in Table 2 leave $P_2O_5$ and $K_2O$ blank. $P_2O_5$ and $K_2O$ needs are best determined by a soil test.*

## ❑ 7. Know how to determine the right amount of fertilizer to buy no matter what the analysis.

Using a 40-pound bag of 16-4-8 as an example, you can determine the percentage and pounds of each nutrient supplied in that 40-pound bag by multiplying 40 pounds by the percentage in decimals (0.16, 0.04, and 0.08):

- Nitrogen = 16 percent (40 x 0.16 = 6.4 pounds of N supplied)
- Phosphorus = 4 percent (40 x 0.04 = 1.6 pounds of $P_2O_5$)
- Potassium = 8 percent (40 x 0.08 = 3.2 pounds of $K_2O$).

At the 1-pound rate of nitrogen per 1,000 square feet, you could treat 6,400 square feet of lawn.

For more help in determining your fertilizer needs, see the fertilizer calculator on the Web (http://aggie-turf.tamu.edu/aggieturf2/calculators/fertsheet.html).

## ❑ 8. Know when to first apply fertilizer in the spring.

Make the first application of fertilizer after the second mowing of lawn grass (not weeds). At this time, the grass is actively growing and can readily use applied nitrogen. It is usually about 6 weeks after the average last spring frost date.

## ❑ 9. Know if additional fertilizer is needed between the spring and fall applications.

Space any supplemental nitrogen applications at least 45 to 60 days apart. Newly established, previously neglected or higher maintenance lawns can benefit from such applications.

## ❑ 10. Know when to apply the last fertilizer application in the fall.

Apply nitrogen in the fall to increase the density of your lawn, which will enable it to resist winter weeds as well as improve fall color and spring recovery. If not applied too late in the fall, nitrogen (1

pound or less per 1,000 square feet) will be taken up by the lawn, greatly reducing potential leaching into the groundwater supply during the winter.

The dates by which to apply your last fertilizer application are listed by growing season in Table 3.

For more information, see the Texas Cooperative Extension publication E-437, *Lawn Fertilization for Texas Warm-Season Grasses*. It further explains the principles behind the 10-point checklist and other important areas not covered here, including environmental issues with nitrogen and phosphorus, uniform application of fertilizer, factors (such as shade and soil) affecting fertilizer use, and evaluation of lawn fertilizers.

**Table 1. Annual nitrogen recommendations for Texas warm-season lawns based on management level and grass type.**

| | Lawn management level | | |
|---|---|---|---|
| | Low | Moderate | High |
| Warm-season grass | *lb nitrogen applied per 1,000 sq ft per year* | | |
| Bermudagrass (common) | 2 | 2-3 | 4-5 |
| Bermudagrass (hybrid) | 2 | 3-4 | 5-6 |
| Buffalograss | 0-1 | 2 | NR* |
| Centipedegrass | 0-1 | 1-2 | NR* |
| St. Augustinegrass (sun) | 2 | 2-3 | 3-4 |
| St. Augustinegrass (shade) | 1 | 1-2 | NR* |
| Zoysiagrass | 1-2 | 2-3 | 3-4 |

*NR = not recommended

**Table 2. Amount of fertilizer to apply for various nitrogen analyses at rates of ½ and 1 pound of nitrogen per 1,000 square feet of lawn.**

| | Amount of fertilizer needed to apply nitrogen per 1,000 sq ft | | |
|---|---|---|---|
| Fertilizer bag reads[1] | ½ lb N rate | ¾ lb N rate | 1 lb N rate |
| 6-?-? | 8.3 lb | 12.5 | 16.6 lb |
| 8-?-? | 6.2 lb | 9.4 | 12.5 lb |
| 9-?-? | 5.5 lb | 8.3 | 11.1 lb |
| 15-?-? | 3.3 lb | 5.0 | 6.6 lb |
| 20-?-? | 2.5 lb | 3.7 | 5.0 lb |
| 21-?-? | 2.4 lb | 3.6 | 4.8 lb |
| 29-?-? | 1.7 lb | 2.5 | 3.4 lb |

[1] To determine the amount of phosphorus and potassium, you will need to have your soil tested.

**Table 3. Recommended cut-off dates for late-season nitrogen fertilizer for Texas cities within the same autumn frost zones (Figure 2).**

| City | Average first autumn frost date[1] | Apply nitrogen 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 nitrogen application should be applied no later than 6 weeks before the expected autumn frost date.**

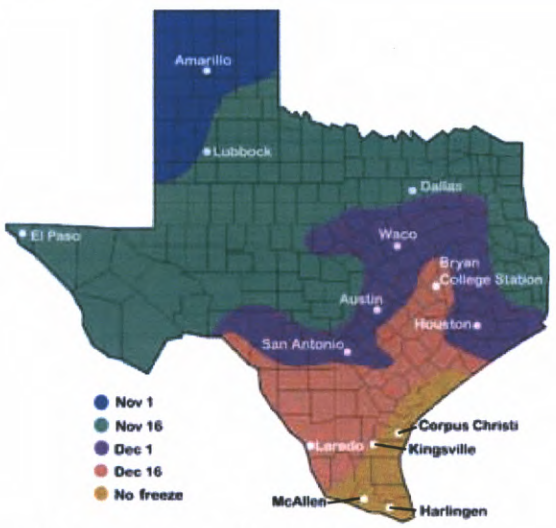


**Figure 2. Average dates for the first fall frost.**

## Other publications on lawn care

The Texas Cooperative Extension Bookstore (http://tcebookstore.org/) also offers these publications on lawn care:

| Publication Number | Title |
|---|---|
| E-159 | *Chemicals for Plant Disease Control at Home* |
| E-420 | *Chinch Bugs in St. Augustine Lawns* |
| B-6081 | *Herbicides: How They Work and the Symptoms They Cause* |
| B-6126 | *Keep Your Lawn Alive During Drought* |
| E-437 | *Lawn Fertilization for Texas Warm-Season Grasses* |
| E-356 | *Lawn Maintenance Safety* |
| E-356S | *Lawn Maintenance Safety* (Spanish) |
| B-6125 | *Lawn Water Management* |
| L-5339 | *Maintaining Bermudagrass Lawns* |
| L-5340 | *Maintaining St. Augustinegrass Lawns* |
| B-6153 | *Rainwater Harvesting* |
| L-5331 | *Sprayer Calibration for Turfgrass* |
| L-5330 | *Spreader Calibration for Turfgrass* |
| L-5170 | *Take-All Root Rot of Turfgrass* |
| E-139 | *Thatch Management for Home Lawns* |
| B-6165 | *Turf Irrigation and Nutrient Management* |
| E-211 | *White Grubs in Texas Turfgrass* |

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# Forages for Beef Cattle

David Bade and Donald J. Dorsett*

Pasture forages for beef cattle can be roughly divided into five categories—warm-season perennials, warm-season annuals, cool-season perennials, cool-season annuals and legumes for pastures. Each of these forage types can meet the nutritional requirements of beef cattle when they are at their peak production (Figure 1). However, none are able to satisfy the nutritional needs of a cow with calf or a growing animal, which are at their low point in production.

## Warm-Season Perennials

Warm-season perennial pastures tend to be the best grasses for a cow-calf operation because they do not have to be planted each year. Once established, these pastures continue to produce for many years. The annual grasses are the most expensive grasses for forage because they must be planted each year, the seed is costly, there is a limited production season and they require high rates of fertilizer.

Warm-season perennial pastures, such as bermudagrass, bahiagrass or kleingrass, generally have a longer growing season than cool-season plants. Since they are perennial plants, they regrow from roots each year. Because they do not have to re-establish yearly, they maintain top forage production for longer periods. They also tend to be lower in digestibility and in protein because of the fiber buildup during the warmer part of the growing season.

*Professor and Extension Forage Specialist and Associate Professor Emeritus

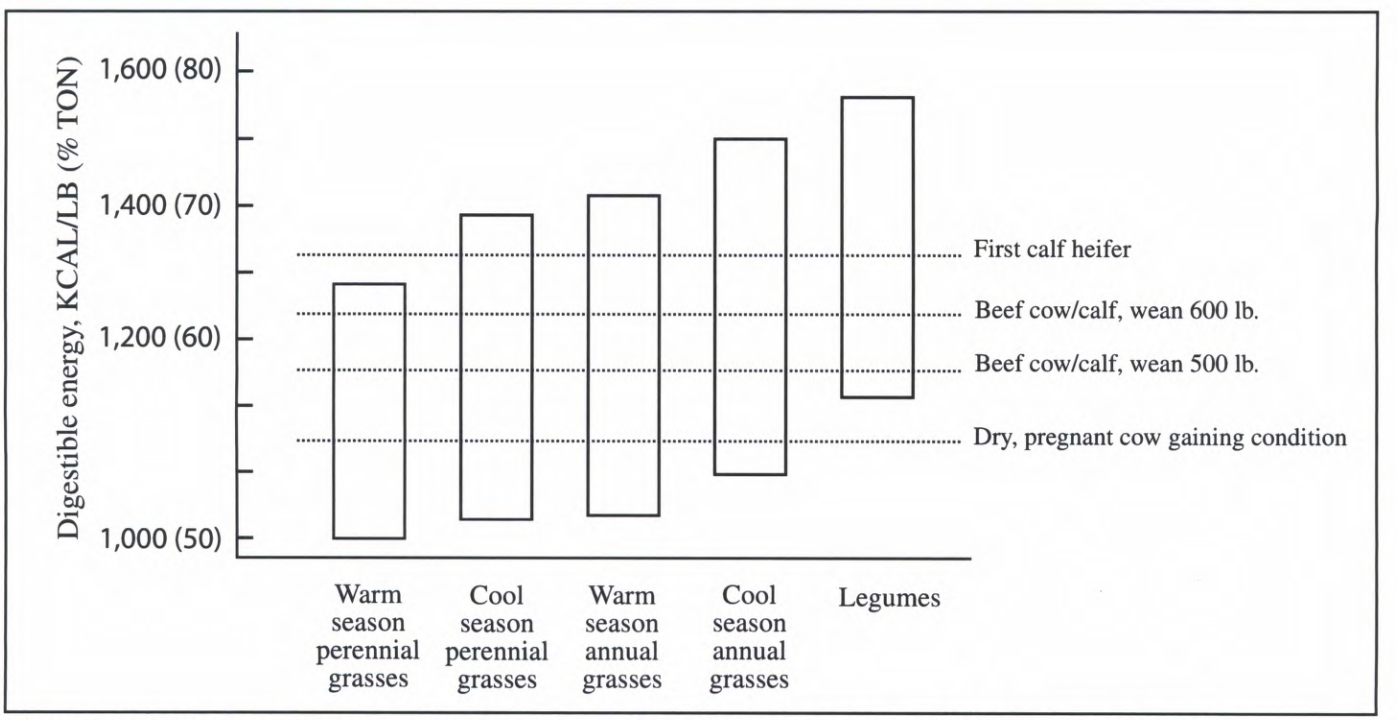


*Figure 1. Variation in energy content of various forages relative to the requirements of various classes of cattle.*

Warm-season perennial grasses respond well to fertilization and, with heavy fertilization, can produce large amounts of hay or grazing per acre. If fertilized and managed properly, they work well in almost any livestock production program.

## Warm-Season Annuals

Warm-seasoned annual grasses, such as the sudans or forage sorghums, play definite roles in livestock production. Being annual plants, they are expensive because land must be prepared and seeded annually. They offer higher quality (digestibility) grazing than perennial warm-season plants, but their production period is shorter. They use less fertilizer, will serve as temporary pasture and maintain a relatively high carrying capacity of two or three animals per acre for 30- to 45-day periods. Their prime role in forage production, however, is for high quality hay.

## Cool-Season Perennials

Cool-season perennial plants have limited use in Texas. Tall fescue and tall wheatgrass are the only cool-season perennial plants that adapt to Texas climate. They generally do not offer high quality nutrition for maximum animal performance.

## Cool-Season Annuals

Although cool-season annual plants, such as oats, wheat, rye, barley, triticale and ryegrass, are expensive pastures because of the cost to establish each year, they are high in nutritional value. Winter annuals are best adapted to stocker operations or to cow-calf combination programs. Because of their expense, annual pastures may not be the best types of pastures for dry pregnant cows, which can be maintained very well on less expensive forages such as high quality hay.

## Legumes

Legume forages might also be considered for a livestock operation. Temperate legumes include clovers, medics, peas, vetch and alfalfa. They can be overseeded into permanent pastures or seeded with winter annual pastures. Legumes have the unique ability to fix their own nitrogen if they are properly inoculated (nitrogen-fixing bacteria is added to the legume seed before planting). They require high levels of phosphorus, potassium and, in acid soil, lime. Cool-season or temperate legumes produce most of their growth during the late winter-spring period, when they are very useful in beef cattle operations. Warm-season or tropical legumes, such as cowpea, soybean, and peanut, can provide high quality forage during the summer. However, they are used as a salvage crop in drought years when they do not "yield" well as a row-crop.

## A Year-round Forage System

No grass meets the production and quality requirements of livestock year-round. Consequently, livestock producers can benefit by combining two or more forage plants into a forage system. By growing adapted summer and winter forage species, livestock producers can furnish grazing for most of the year. Although this requires management and planning, it reduces hay and feed costs.

Sodseeding or overseeding legumes or small grains in conjunction with a warm-season perennial pasture offers several advantages over clean-tilled or prepared seedbed cool-season pastures:

- Sodseeding allows a longer productive period for any given acre of ground. The cool-season grass may not be as productive as on a clean-tilled seedbed, but using with a warm-season perennial plant, the sodseeded pastures will extend the spring green-grazing period by as much as 60 days.
- If winter pastures are adequately fertilized, the base grass or warm-season grass also benefits.
- Sodseeded pastures offer a higher level of nutrition and enhance animal performance.

Any warm-season perennial grass (bermudagrass, bahiagrass, kleingrass or even native grasses) can be overseeded. The problem is competition in late spring between an overseeded pasture and a warm season perennial pasture that is beginning to grow. There is direct, heavy competition in this overlap growth period for nutrients, moisture and sunlight. During dry springs, an overseeded winter pasture takes the elements for growth and might completely retard the growth of a warm-season grass. Heavy competition with the warm-season grasses may result in a thinning of native or bunch grass stands when they are continually overseeded.

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