



Selecting an Appropriate Bermudagrass Variety for Pastures

March 2019

Oklahoma Cooperative Extension Fact Sheets are also available on our website at: facts.okstate.edu

The Oklahoma Cooperative Extension Service WE ARE OKLAHOMA

The Cooperative Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state, and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education

for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.

- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

Lucas Freires Abreu
Graduate Student, Forages

Alex Rocateli
Forage Systems Extension Specialist

Selecting Bermudagrass forage variety is the first right step toward a productive pasture. You can select the best field, properly fertilize it and prepare a perfect seedbed; however, you may end up with an unproductive and poorly established pasture with a much shorter stand longevity than normal if you do not select a proper Bermudagrass variety. This fact sheet lists the most important soil and weather factors to consider when deciding which Bermudagrass variety to establish.

Some Bermudagrass varieties are clonally propagated and do not produce viable seeds. Those varieties are available for planting as sprigs, only. Other Bermudagrass varieties produce viable seeds; therefore, they are available for planting with seeds even though viable sprigs can also be produced from them. Consequently, the first step toward choosing a Bermudagrass variety for your specific pasture is to decide which planting method to use: seed or sprig Bermudagrass. Deciding planting method either sprigging or seeding the first "variety sieving" when comes to selecting the proper Bermudagrass variety to your specific field. There are several sprigging and seeded Bermudagrass varieties available in the market, and selecting the most appropriate seed or sprig variety can become overwhelming. To simplify this process, there are some criteria to follow when choosing Bermudagrass varieties. The main factors on choosing the most appropriate variety to a specific location are described below.

Winter Hardiness

Winter hardiness is the ability of a Bermudagrass variety to survive the winter. Varieties that are not winter hardy to a specific location typically get killed to varying degrees in winter, resulting in loss of stands or declining over time in stand density and productivity. Therefore, this criterion is the first to be satisfied when choosing Bermudagrass varieties in Oklahoma. The severity of winters increases as latitude increases; therefore, some varieties that are used in the southern part of the state are poorly adapted to the northern part. For instance, the old varieties Alicia and Coastal are two clones that are winter hardy and promise rapid establishment and good yield potential for the first tier of counties in southern Oklahoma; however, they will not tolerate the cold winter in northern Oklahoma locations. For northern Oklahoma, relatively newer varieties, such as Midland 99 and Goodwell, will be better options.

Site-specific Adaptions

After the winter hardiness requirement is satisfied, subtle performance differences among varieties, such as disease resistance, tolerance to low pH, waterlogging and adaption to other site-specific issues should be considered. Make sure to evaluate site limitations and the most reoccurring weeds, insects and diseases, then select the most appropriate variety to your specific conditions. For instance, Midland 99 is known as a high-yielding clonal, which will generally produce more than Greenfield. However, this may not be true in some eastern Oklahoma locations on alluvial soils. Greenfield can develop faster and produce more than Midland 99 in wet alluvial soils. On the other hand, Midland 99 will be a great option for coarse-textured soils, such as sandy loam, which is a well-drained soil.

Growth Morphology

For growth morphology, the varieties are separated into two groups often referred to as grazing types and hay types. The grazing types are distinguished from the hay types as being shorter in stature and forming a more dense sod. In other words, the grazing types will invest energy in production of more runners, or stolons, than hay types. Hay types will invest less in runner production so it can produce more upright stems and leaves. More runners make the grazing-type Bermudagrass more resilient to animal hoofing and allow more growing points for a steady, but relative slow forage production. On the other hand, hay-type Bermudagrass will produce great amounts of leaves and stems relatively fast, allowing fewer hay cuts with more tonnage throughout the season. Even though the name of each type defines its primary use, hay types can be grazed and vice-versa; although low performance can be expected varieties are not used as intended. Haying grazing types will result in a higher number of cuts with less tonnage per cut, meaning more production costs for the same or less amount of hay produced throughout the season. Grazing hay types will result in intermittent forage production through the season, where stocking rates must be lower and grazing stubble heights must be kept higher (≥ 3 inches) than grazing types.

Most of the clonal Bermudagrasses are hay types because Bermudagrass breeding programs prospered on high forage tonnage regardless of grazing resilience. However, the most

Oklahoma State University, as an equal opportunity employer, complies with all applicable federal and state laws regarding non-discrimination and affirmative action. Oklahoma State University is committed to a policy of equal opportunity for all individuals and does not discriminate based on race, religion, age, sex, color, national origin, marital status, sexual orientation, gender identity/ expression, disability, or veteran status with regard to employment, educational programs and activities, and/or admissions. For more information, visit <https://eeo.okstate.edu>.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director of Oklahoma Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President for Agricultural Programs and has been prepared and distributed at a cost of 20 cents per copy. 0319 GH.

Table 1. Commercial seeded-propagated Bermudagrass varieties.

<i>Name</i>	<i>Type</i>	<i>Description</i>
Cheyenne II	Grazing/Hay	High yielding with good leaf to stem ratio. Good palatability. Cold tolerance for most of Oklahoma.
Common	Grazing/Hay	Moderate cold hardiness; best adapted south of about 34° latitude and in sub-humid climates; used as a turf and forage grass.
Giant	Hay	Tall, fast growing, but less cold tolerant than common, not winter hardy, usually winter kills throughout Oklahoma. Used in blends with common or other Bermudagrasses to speed establishment. Very similar to Coastal Bermudagrass; however it produces seed.
Mohawk	Grazing/Hay	High yielding, cold tolerant, drought resistant. Forms a dense sod greener in color.
Morhay	Hay	Resistant to high heat and low moisture environments. Has a dark green color, establishes and spreads fast.
NK-37	Grazing/Hay	Tall and thick variety. Characterized by quick recovery after cutting, fast and vigorous growth.
Pasto Rico	Hay/Grazing	Blend of giant and coastal Bermudagrass. Quick stand on first year. However, giant Bermudagrass plants will not last more than four years.
Ranchero Frio	Hay/Grazing	Fast establishment with high yield and extremely drought and cold tolerance. Adaptable for most soil types.
Riata	Grazing	Blend of Wrangler and Riviera for an intense grazing. Relative low winter resistance.
Sahara II	Grazing	Drought and heat tolerant. Bred to be greener and an improvement of common Bermudagrass.
Stampede Plus	Hay/Grazing	Fast establishment and with high yields and quality in warmer areas.
Sungrazer	Hay/Grazing	Selected for cold and drought resistance, high yields and nutritive value.
Texas Tough	Hay/Grazing	High drought tolerance, high yields and insect resistant.
Tierra Verde	Grazing/Hay	Blend of Mohawk and Sahara II. Highly palatable and good yields with thin leaves.
Wrangler	Grazing/Hay	Very cold tolerant, high quality in tough growing conditions, well adapted to the entire state, performing better than others in transition zone (northern Oklahoma) and southern Oklahoma. Used as forage and for soil stabilization.

Table 2. Commercial clonal Bermudagrass varieties available for use in Oklahoma

<i>Variety</i>	<i>Time released</i>	<i>Type</i>	<i>Major Characteristics</i>
Alicia	Mid 1960s	Hay	Moderately cold tolerant; marginally adapted to the first tier of counties in southern Oklahoma. Established with top cuttings or sprigs; spreads rapidly during establishment with high yield potential.
Coastal	1943	Hay	Moderately cold tolerant; marginally adapted to the first tier of counties in southern Oklahoma and with high yield potential.
Goodwell	2007	Hay/Grazing	Large stems, wide leaves, dense sod and good winter hardiness.
Greenfield	1954	Grazing	Persistent forage establishes easily. Good performance on poor soils.
Hardie	1974	Hay	Cold hardy through most of Oklahoma; high yield potential; poor stand persistence, especially in eastern Oklahoma due to disease susceptibility and intolerance to low soil pH.
Midland	1953	Hay	High leaf amount and dark color with an open sod.
Midland99	1999	Hay	Similar to Tifton 44, but more tolerant to low temperatures. High yield potential.
Ozark	2002	Hay	Long leaves, cold resistant and steady yields.
Tifton44	1978	Hay	The most used winter hardy variety in the southern U.S. Early green up in spring, high average daily gain. However, it takes longer to establish.
World Feeder	1990	Grazing	Yield similar as Greenfield. Moderate winter hardiness, but average quality.

recent clones such as Goodwell (released in 2007) is marketed as hay/grazing. During the past decade, Bermudagrass breeding programs are acknowledging grazing resilience as an important trait in response to the increasing number of Bermudagrass pasture depletion due to severe grazing on clonal types. Moreover, today's focus is on the development of seed rather than clonal varieties because seed companies found Bermudagrass seed more profitable than sprigs. Seeding to establish a Bermudagrass pasture is much cheaper than sprigging.

Forage Yield and Quality Potential

Even though every Bermudagrass variety has its own yield potential dictated by its genetics, the actual forage yield each variety can achieve is limited by field conditions and management practices. The pasture's latitude, length of the growing season, temperature, rainfall and its pattern, soil texture, fertility and other management practices are the major factors that dictate the final forage yield of a specific Bermudagrass variety. Therefore, choosing a variety by the yield promised on the seed bag is not the wisest decision. Seed companies test their products in the best weather, soil conditions; and use the best management practices possible to show the full potential of their products. The odds that your pasture will replicate these same conditions are very low. A more applicable Bermudagrass variety selection would be by looking at how each variety performs close to your location.

A very common approach used by many producers is by word-of-mouth. Even though a consistent number of good testimonials from different neighbors is positive evidence; this is a very subjective evaluation, and perhaps inaccurate. These testimonials may not include fertilization levels, irrigation amounts, herbicides expenses, accurate yields, etc.

An impartial approach for selecting the best variety to a specific pasture is looking at the closest public Bermudagrass variety trial to your location. Public variety trials are managed by state universities, which is an unbiased source of information to the public. Furthermore, public variety trials use proper scientific methodology to compare different varieties and disclose all pasture management to the public allowing the most objective and accurate evaluation. Since 2016, the OSU Forage Program has been conducting Bermudagrass variety trials throughout the state. So far, there are six Bermudagrass variety trials at four different locations, spanning from central to eastern Oklahoma. Find the OSU Bermudagrass variety trial reports on the Extension fact sheet website at: facts.okstate.edu. If you have any questions about those reports, please contact your local county Extension educator or the author of this fact sheet. You can find your county Extension office staff at countyext2.okstate.edu