



CHOOSING A WATER-EFFICIENT GRASS

With warmer temperatures in the afternoons and jonquils beginning to emerge and bloom, we once again turn our attention to our yard. For some, this can be a tranquil source of methodical enjoyment; for others, it is a constant commitment of perpetual maintenance. Either way, many homes have turfgrass of some variety and understand the needs that must be met to have a healthy lawn. To keep that yard looking crisp and neat, fertilizers, pesticides, and herbicides must be utilized on a routine basis to promote growth and keep the organisms that compete with the grass or want to eat it at bay. Another main component of this maintenance is ensuring that the yard meets one of life's basic needs: water. Typically, in Georgia, during the first few months of the year, water scarcity is not an issue; so far (as of February 7, 2023), we have already had over 9 inches of rain. This abundance of rainfall is not consistent throughout the year, thus resulting in the need to water your lawn in the warmer months. The type/variety of turfgrass you have can significantly impact how much/how frequently you need to irrigate it.

Until recently, the grass variety we have known about that has been deemed to be the most efficient with its water consumption was the University of Georgia variant known as TifTuf bermudagrass and it is one that has been promoted in several water conservation guides. Since then, Oklahoma State University has been working on its own bermudagrass variant, OKC 1131 or commonly "Tahoma 31®". This grass has been in development since 2006 when Dr. Yanqi Wu, Professor of Grass Breeding and Genetics at Oklahoma State University, began germinating seeds from two unlikely grass varieties. The Mother Plant originates from the east side of the Himalayas in China, a region known to be very cold and arid. The Father Plant, a fine textured grass, originates from South Africa, also known for its cold, dry climate. The resulting plant, Tahoma 31®, is a very hardy, drought-resistant plant that also holds up to cold weather.



Upon further research, we found a study published in 2017 that compares seven different types of bermudagrass, including Tahoma 31® and TifTuf, on the Evapotranspiration rate (ET) during 2013, 2014, and 2015. The ET rate is a function of soil moisture, plant type, stage of plant development, and weather (Brown, 2014). The evapotranspiration rate is normally expressed in millimeters (mm) per unit of time (days). The rate expresses the amount of water lost from a cropped surface in units of water depth. Adequate and available soil moisture increases water consumption, increasing turfgrass water use rates (Kneebone and Pepper, 1984). Turfgrass water requirements vary among species and cultivars within the same species. In layman's terms, the ET rate is the measure of how much water a plant needs to survive under various conditions. The results of this study are found in the table below. The numbers in the chart are presented in units of mm d⁻¹, which are measurements in millimeters of water "lost" over the course of the day. The lower the number, the more water the plant absorbs; the higher the number, the less water the plant has absorbed. Lower numbers are better because the plant is more efficient with the water it is provided.

CULTIVAR	ET RATE
Tahoma 31®	4.06
Northbridge	4.29
Tifway 419	4.54
Latitude 36	4.59
Premier	4.63
Celebration	4.77
TifTuf	4.95

Table 1: Average Evapotranspiration (ET) rates of 10 bermudagrass genotypes under nonlimiting soil moisture conditions from 2013-2015 in August and September in mm d⁻¹(millimeters of water lost per day).

In conclusion, there are a lot of other factors to consider when selecting the correct type of grass to use in your yard, including ❶ Durability ❷ How quickly it greens up in the spring ❸ How quickly it goes dormant in the fall ❹ Shade tolerance ❺ Tolerance to cold temperatures ❻ Drought tolerance (It is important to note that Tahoma 31® also outperformed TifTuf in other studies in these areas) We realize many readers already have established yards with whatever type of turfgrass was in place at the time of the home's construction. That being said, sometimes situations arise that call for redoing one's yard, and when that time comes, we want you to have the most up-to-date information on water-efficient landscaping options. Hopefully, you can use this information to make an informed decision, which will ultimately help save on your water bill and conserve this precious resource we strive to be careful stewards of.

References: Amgain, N. R., Harris, D. K., Thapa, S. B., Martin, D. L., Wu, Y., & Moss, J. Q. (2018). (rep.). Evapotranspiration Rates of Turf Bermudagrasses under Nonlimiting Soil Moisture Conditions in Oklahoma (pp. 1-7). Madison, WI: Crop Science.

Brown, P. 2014. Basics of evaporation and evapotranspiration. Publ. AZ 1194. Univ. of Arizona Coop. Ext., Tuscon.

Kneebone, W.R., and I.L. Pepper. 1984. Luxury water use by bermudagrass. Agron. J. 76:999-1002. doi:10.2134/agronj1984.00021962007600060031x

*Just as a reminder, if you have a particular topic or question you would like us to address, please send it to ccwsaea@gmail.com.