

UGA Breeds A Grass That Thrives In Shade And Sun

University of Georgia Research Foundation



Plant breeders at the University of Georgia (UGA) and the U.S. Department of Agriculture's Agricultural Research Service (ARS) have accomplished a near impossible task: growing grass where the sun doesn't shine (much).

The new cultivar — brand named TifGrand — is a Bermudagrass hybrid developed by Wayne Hanna and Kris Braman of the UGA's turfgrass breeding program. More than 15 years in the making, TifGrand can grow with less than half the sunlight required by other Bermudagrasses.

"Having a Bermudagrass that can tolerate shade is something those of us in the turf business have wanted our whole lives," says Bill Carraway, vice president of marketing at [The Turfgrass Group](#), which markets and licenses TifGrand. "A Bermudagrass that can tolerate shade is a phenomenon."

Center of the Bermudagrass Universe

Bermudagrass is grown as forage for livestock and as turf for lawns, parks and golf courses. Because it is heat- and wear-tolerant, it is also widely used on athletic fields. Known as a warm season turfgrass, Bermudagrass thrives in

tropical and subtropical climates and is grown in more than 100 countries around the world, including much of the southern United States.

“Bermudagrass is cosmopolitan, it tolerates lots of conditions, it’s tough, and it recovers well,” says Hanna, a professor of plant breeding and genetics in the Department of Crop and Soil Sciences at UGA’s College of Agricultural and Environment Sciences since retiring from the ARS in 2003.

Since the 1950s, scientists at the ARS and UGA have collaborated in breeding new warm season turfgrasses in Tifton, a small southern Georgia town known as the birthplace of turfgrass.

“Working in Tifton was my dream job,” says Hanna, who earned degrees in agricultural education/plant breeding and a doctorate in genetics from Texas A&M University. When he got a job offer from the ARS on a Friday in 1970, he was in Georgia and ready to work by the following Monday.

“The ARS gave me the best 34 years of on-the-job training,” says Hanna. “I learned what works and what doesn’t by listening to producers and consumers.”

Over the last few decades, Hanna has worked at developing hybrids that improve upon the commercial qualities of common Bermudagrass, which can spread uncontrollably. Between 1983 and 2014, he developed four new cultivars by crossing superior strains of Bermudagrass and another turf grass called centipedegrass. These grasses — including TifGrand, TifEagle, TifSport and TifBlair — licensed by the [University of Georgia Research Foundation](#) (UGARF) each of which is superlative in their own way — such as cold- or traffic-tolerant.

Compared to common Bermudagrass, Hanna’s hybrids feature finer leaves and a lush, long-lasting green color. Because the hybrids do not produce seeds, they are less invasive and easier to control.

Shade Tolerance

Hanna began work on a shade-tolerant hybrid in 1991, with 27,000 plantings in 18-inch squares covering UGA’s test fields. From those, hybrids that demonstrated good color and disease-resistance were selected, paring the number of potential hybrids to 458.

“Nowadays, some new grasses come out with a lot of hype and pretty pictures but little data,” says Hanna of UGA’s protracted research process. “It always pays off to do testing and stick with quality.”

Replicated tests conducted over a three-year period further reduced the group to 110. In 1999, the 110 hybrids were planted in a field that received 40 to 60 percent shade; just six of those plants kept their density and dark green color.

The six hybrids were then tested off UGA property at golf courses and lawns for final replicated tests. The superior plant that emerged — experimental line ST-5 — then underwent extensive testing for insect resistance and shade tolerance, including independent trials in 19 states in diverse environments such as golf courses and landscape applications.

“Our program is known for thoroughly evaluating new cultivars,” says Shelley D. Fincher, plant licensing manager in [UGA’s Technology Commercialization Office](#). “When TifGrand was introduced, there was a great deal of interest from growers wanting to license it. The industry knows that if Dr. Hanna developed it, it’s high quality.”

By 2009, the university was finally ready to introduce the newly patented cultivar to the marketplace, which was anxiously awaiting the new turf variety.

“The fact that TifGrand produces beautiful turf with just 5 to 6 hours of sunlight instead of the typical 8 to 10 hours is huge for landscape, sports and golf environments,” says Carraway.

In addition to shade tolerance, TifGrand offers a host of other advantages to both farmers and customers: It requires less water and a third less fertilizer than other Bermudagrasses. The new cultivar is also pest-resistant, and because the cultivar is seed and pollen sterile, the TifGrand causes fewer allergies and will not spread to nearby habitats.

“TifGrand offers tremendous value added,” says Carraway. “It has a very thick canopy with tight structures close to the ground.”

A Different Approach

Growers from around the country vied for the opportunity to license TifGrand, but UGARF decided to take a new approach in licensing TifGrand, selecting a group of four Georgia sod producers who formed a company called New Concept Turf that would in turn license the grass to farmers across the country.

“This consolidated group consisted of some of the best growers we’d worked with,” says Fincher. “They market TifGrand as a group.”

New Concept Turf contracted with The Turfgrass Group to handle licensing and marketing duties for TifGrand. Unlike other turfgrass cultivars licensed by UGARF, the responsibility for TifGrand licensee compliance primarily belongs to The Turfgrass Group.

“In the past, we have issued nonexclusive licenses for our turfgrass cultivars, and we are responsible for the termination of those licenses in the case of poor quality turf production,” says Fincher. “Given the expertise of New Concept Turf and The Turfgrass Group, it made sense to have them assume the role of sublicensee manager for the U.S. production of TifGrand.”

“*The Turfgrass Group chose to limit the number of TifGrand producers in each state to help maintain the integrity of the new cultivar.*”

“We require our TifGrand growers to be members of their state certification programs,” says Carraway, adding that he personally walks every square inch of the fields producing TifGrand. “By requiring our growers to adhere to the highest production standards in the United States, we are able maintain the genetic purity and provenance of our grass.”

Fincher says in addition to requiring much less oversight, the TifGrand licensing arrangement is bringing in substantially higher revenue than the office’s previous nonexclusive license agreements.

“This was a totally different strategy for us, and we were very careful and deliberate about taking this approach,” she says. “We couldn’t be anymore pleased with the progress made with TifGrand.”

Rough Start

But that’s not how TifGrand started out. The introduction of the new hybrid coincided with the economic downturn of 2009.

“If UGA develops a new Bermudagrass, people want it,” says Carraway. “But the downside of marketing TifGrand was that we released it in the worst economic period since the Great Depression. Turf growers were going out of business as often as you do laundry.”

As housing construction ground to a halt, so too went the demand for sod. Fields of Bermudagrass sat unsold on farms for up to three years, leaving no room for farmers to produce new cultivars. Still, Carraway was able to find farms with the foresight and wherewithal to invest in TifGrand.

“Between 2009 and 2010, we were able to license TifGrand to more than 20 farms across the U.S. who wanted to set themselves apart from other growers,” he says.

Those farmers are now beginning to see the return on their investment, as demand and appreciation for the new Bermudagrass is growing. In 2013 and 2014, Carraway said many TifGrand producers cut and sold all their TifGrand sod and began adding new acreage.

Athletic facilities — most notably three stadiums hosting the 2014 FIFA World Cup in Brazil — are embracing the new grass not only for its ability to flourish in both sun and shade but also for its ability to stand up to significant wear and tear.

“When you have a lot of games being played on a field, it can’t get all torn up, it has to hold up,” says Hanna. “Athletes also say they prefer to play on grass rather than artificial turf.”

After a rough start, TifGrand is now being grown on 25 U.S. farms — and is getting great feedback from consumers, including homeowners who appreciate the ability to grow grass under a canopy of trees.

“TifGrand is becoming the Bermudagrass of choice,” says Carraway. “Now you can have your Bermudagrass and your trees too.”

This story was originally published in 2010.

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