

# Maui's Turfgrass Extension Program

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## ABSTRACT

Turfgrass is an important commodity for landscapes, golf courses, and sod producers in Hawaii. The combined value of these industries is approximately \$507.7 million and have provided more new jobs, in comparison to the total value of diversified agriculture, sugar, and pineapple, which was estimated to be \$521 million in 2000 (Cox, 2003) and where jobs have declined significantly (Cox & Hollyer, 1989).

For nearly twenty years, many new and improved warm- and cool season turfgrass cultivars have been developed and evaluated for adaptability throughout the U.S. and Canada. However, no trials have been conducted in Hawaii.

## OBJECTIVES

The objectives of this program are to introduce, evaluate, and/or display various vegetative and seeded turfgrass cultivars for Hawaii's stakeholders. Projects include:

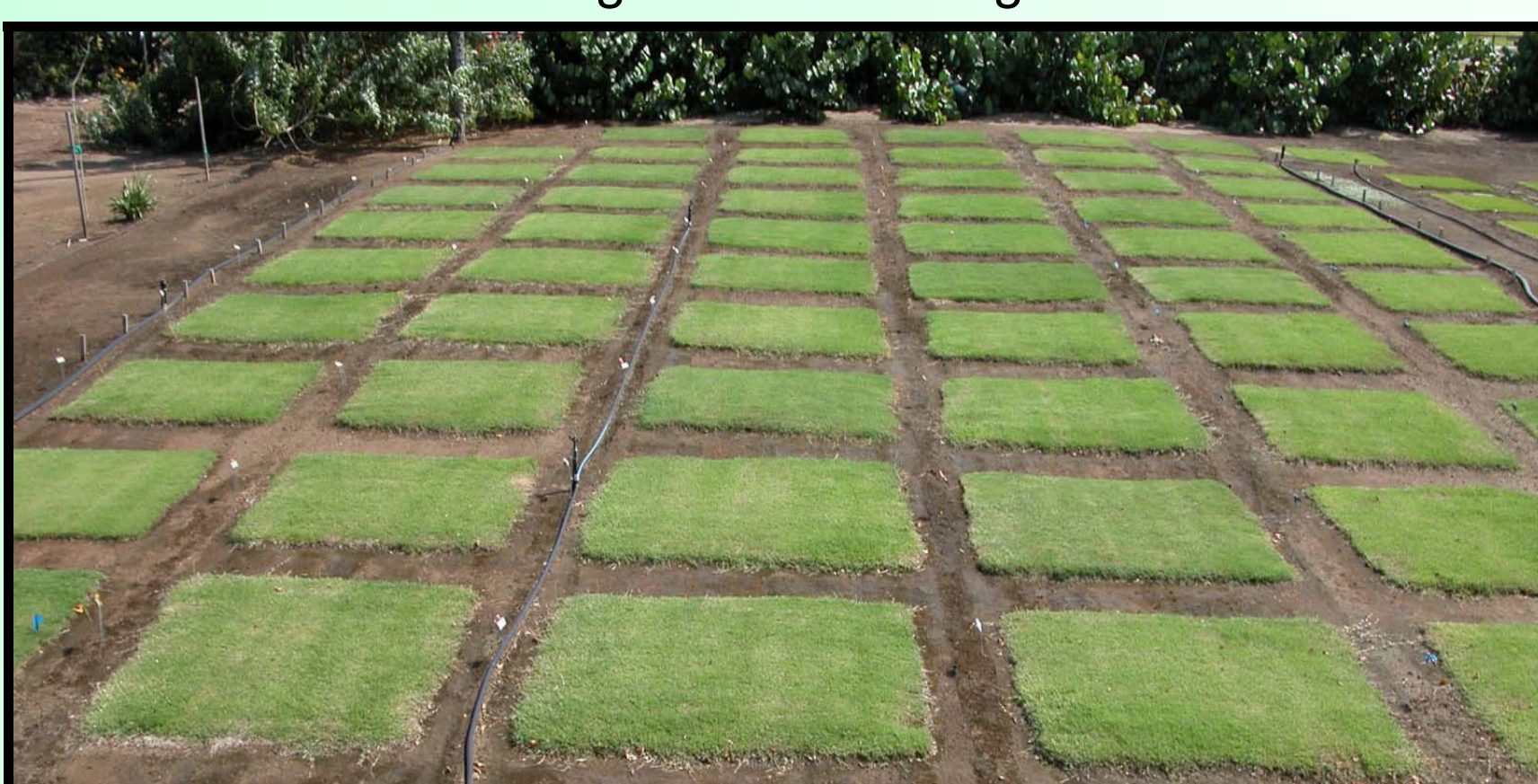
- (1) A bermudagrass trial comparing eighteen seed cultivars and two vegetative hybrids.
- (2) An evaluation of three vegetative and a seeded seashore paspalum.
- (3) A display of four newly imported zoysiagrasses and five locally grown cultivars.
- (4) A display of fourteen grasses for use in erosion control.
- (5) A display of miscellaneous turfgrasses.

## BERMUDAGRASS EVALUATION

In Hawaii, bermudagrasses are commonly used in lawns, parks, sports fields, golf courses, along roadways, for land stabilization, and erosion control. The availability of seeds, rapid establishment, good drought tolerance, and adaptability to warm, humid weather make them highly desirable and widely used. However, with so many new cultivars being marketed, no information is available on which cultivars are most suitable for Hawaii.

An evaluation on the most popular cultivars that are being marketed and grown in the U.S. is currently being conducted on Maui for Hawaii's stakeholders (see adjacent photo).

Eighteen seeded bermudagrasses (Common, *Blackjack*, *Mirage*, *Mohawk*, *NuMex Sahara*, *Princess*, *Pyramid*, *Riviera*, *Savannah*, *Southern Star*, *Sultan*, *Sundance II*, *Sundevil II*, *Sunstar*, *Sydney*, *Transcontinental*, *Yukon*, *Yuma*) and two vegetative hybrids (*Tifton 328*, *Tifton 419*) were planted in a randomized complete block with three replicated 5' x 5' plots in June 2003. Evaluations began in June 2004 and will continue for a year. Currently, *Tifton 419*, *Yukon*, *Transcontinental*, and *Princess* have shown the best overall turfgrass quality.

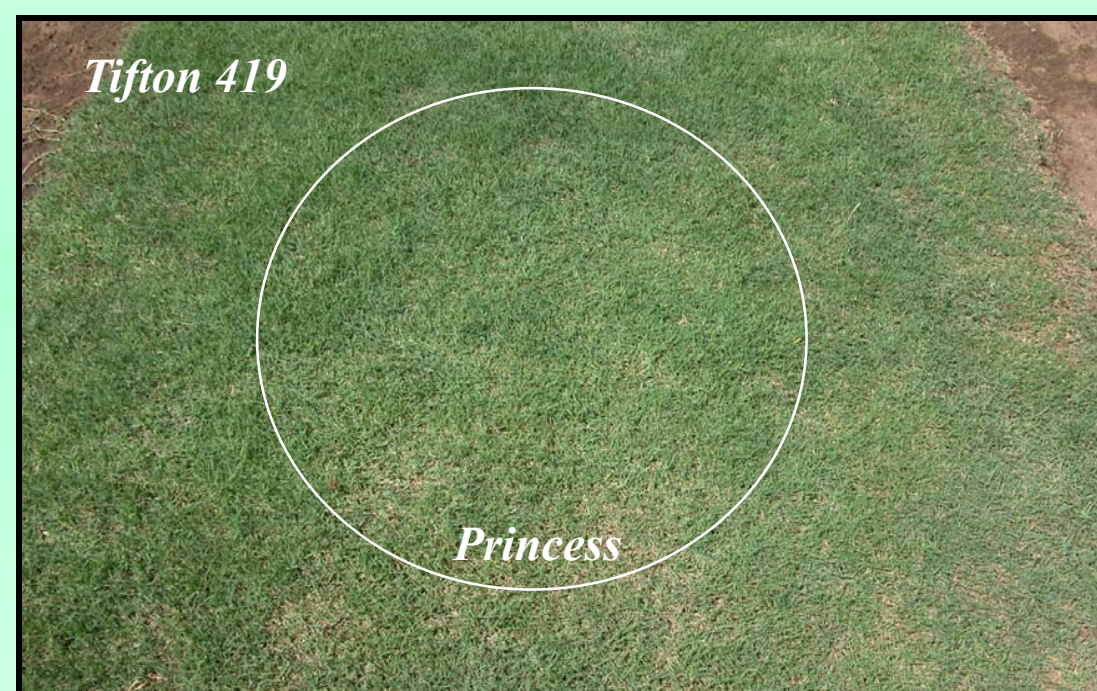


## EVALUATING THE COMPATIBILITY OF PRINCESS WITH TIFTON 328 AND TIFTON 419

Most golf courses in Hawaii use either *Tifton 328* (*Tifgreen*) or *Tifton 419* (*Tifway*) on their fairways, roughs, aprons, and collars. These grasses are constantly being damaged by golfers (divots, foot traffic), equipment (compaction, tire damage), insects, diseases, and other causes.

A simple and less intrusive way to repair these areas is by overseeding; unfortunately, seeds are not available for these hybrid grasses. Another option is resodding, or replanting by plugs or sprigs, which is slower, more expensive, and may take the area out of play for several months.

An evaluation was done to test the compatibility of *Princess* with *Tifton 328* and *Tifton 419* for replanting turf areas. Randomized, complete blocks with 3 replicated, 5' x 5' plots of either *Tifton 328* or *Tifton 419* were planted around a 1.5' diameter planting of *Princess*.



Data indicated that *Princess* blended in quite well with *Tifton 419*. Both grasses have a bluish-green color and a similar growth habit when mowed regularly. However, if left unmowed for several weeks, *Princess* will have a more prostrate growth and produce more undesirable seed-heads.



*Tifton 328* and *Princess* were less compatible. The prostrate growth and bluish-green color of *Princess* stood out when planted with *Tifton 328*, which is lighter green, grows more upright, and has finer texture leaves.

## EVALUATION OF SEASHORE PASPALUM

Seashore paspalum with its vibrant green color is very popular for lawns, landscapes, and is now being used more on golf courses in Hawaii. Its dense growth minimizes weed problems and its high salt tolerance allows the use of non-potable water for irrigation (recycled, brackish, or well water) and establishment along coastal areas where salt sprays are a problem.

In March 2003, a seeded (*Sea Spray*) and three vegetative (*Sea Isle 1*, *Sea Isle 2000*, *Salam*) cultivars were planted in a randomized, complete block with 3 replicated 5' x 5' plots. Initial results indicated that all four cultivars are similar in overall turfgrass quality. *Sea Spray* has another desirable characteristic of having fewer seedheads than the vegetative cultivars.



## ZOYSIAGRASS DISPLAY

Zoysiagrasses are widely used in Hawaii due to their dark green color, dense growth, moderate shade tolerance, and relatively low maintenance. They also have a range of different leaf forms, from very narrow to moderately wide leaf blades, which give them the versatility of being used in lawns or as a groundcover in landscapes.

Display plots of different zoysiagrasses were established to help stakeholders learn about the characteristics of these grasses.

Included are three new cultivars of *Zoysia matrella* (*Diamond*, *Cavalier*, *Royal*) and a *Z. japonica* (*Palisades*) that were recently acquired from Texas A&M University and are being grown along side the local cultivars, *Emerald*, *El Toro*, *Z-3*, *Zenith*, and a common seeded *Z. japonica*.



## TURFGRASS FIELD DAYS

Turfgrass field days were held in December 2003 and May 2004 for people in the landscape, golf course, sod, and affiliated industries. On occasions, other stakeholders have also requested to see these ongoing turfgrass projects. On display are research and demonstration plots of bermudagrass, zoysiagrass, seashore paspalum, and other miscellaneous turfgrasses.

## OUTCOMES

Surveys taken during these field days indicated that industry representatives found the turfgrass program very educational and recognized the benefits of having it continue. The majority of these people were planning to use the information from these projects within six months, while others would utilize the information sometime in the near future. Their knowledge on these grasses had increased by 43%. This correlates to an estimated increase in their profits by 33%.

## TURFGRASS DISPLAY PLOTS

In Hawaii, most people are unfamiliar with the vast array of turfgrasses that are available in the U.S., other than those cultivars that are being grown locally in lawns (bermudagrass, zoysiagrass, seashore paspalum, St. Augustinegrass).

The photo on the right shows several different turfgrasses that were planted as an educational display for stakeholders using subsurface irrigation. Included are bermudagrass (*Tifton 419*, *Princess*), Australian carpetgrass, Argentine bahiagrass, tall fescue, Texas bluegrass, buffalograss, kikuyugrass, creeping bentgrass, centipedegrass, and seashore paspalum (*Salam*, *Sea Isle 1*, *Sea Isle 2000*, *Sea Spray*). Other grasses will be planted as seeds become available.



## TURFGRASS/EROSION CONTROL FIELD DAYS

Field days were held in May and August 2004 to allow industry representatives to see a demonstration of fourteen different grasses that were planted in an agricultural subdivision for erosion control. Included in the display were bermudagrasses (*Cheyenne*, *Mohawk*, *Princess*, *NuMex Sahara*), buffalograsses (*Cody*, *Bison*), centipedegrass, Australian carpetgrass, tall fescue (*Plantation*), kikuyugrass (*AZ1*), seashore paspalum (*Sea Spray*), weeping lovegrass, zoysiagrass (*Zenith*), and annual ryegrass (*Gulf*).

## OUTCOMES

Surveys indicated that these stakeholders had obtained new information from this demonstration. They also expressed the viability of this project and suggested more work should be done on erosion control. From this experience, 81% of these people plan to use this new information in their jobs within 6 months, while others would probably use it sometime in the future. These surveys also revealed that their knowledge on these grasses had increased by 55.5%.

## SUMMARY

This turfgrass program start less than 2 years ago and has now become the most comprehensive evaluation program in Hawaii. Its focus is to provide stakeholders with information on the most suitable turfgrasses for their particular situation. Feedback from industry representatives indicated tremendous support and interest in these projects. They were also appreciative for these educational opportunities.

Future plans are to continue these ongoing projects for another year; import (under quarantine) new vegetative cultivars, and begin new evaluations on seeded cultivars of bermudagrass and zoysiagrass.