Funds Disbursed Through the USGA Research Committee

Category	1983-88 Expended	1989 Projected	1983-89 Total
Stress Mechanisms	$ 460,500	$ 67,800	$ 528,300
Turfgrass Breeding	894,285	337,000	1,231,285
Cultural Practices*	365,123	105,500	470,623
Turfgrass Research Library	354,326	60,000	414,326
Administration	144,285	70,000	214,285
Total	$2,218,519	$660,300	$2,878,819

*includes biotechnology category

Administrative funds disbursed through 1988 were $144,000 and will reach $214,000 by the end of 1989.

Disbursement Summary

For the first five years (1983-88), total funds disbursed have amounted to approximately $2,200,500. Through 1989, the sixth year of the 10-year program, disbursements will approach $2,800,000. We thank all who have contributed, participated, cooperated, and supported this effort, and those who will continue to do so.

Six Grasses — One Golf Course

by TOMMY WITT, CGCS
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PETE DYE designed and built an extremely challenging, very aesthetic golf course for the Country Club of Austin, in Austin, Texas, in 1984, at its new location in the hills west of Austin, along the Colorado River. In addition to creating a spectacular design, Dye established a combination of different grasses, several of which had never been used in central Texas.

Dye chose to establish Penncross bentgrass on the greens, 419 bermudagrass on the fairways, 328 bermudagrass on the tees, centipede in the roughs, St. Augustinegrass on the aprons, and a mixture of blue grama, buffalograss, lovegrass, and bluestem in many of the waste areas. Because of its poor playing qualities, though, much of the St. Augustinegrass has been replaced with 328 bermudagrass.

As you can imagine, dealing with six different grasses on one golf course presents quite a challenge, requiring a number of turfgrass management considerations.

The Penncross greens were established on a 100 percent sand base, with the severe undulations and contours so typical of much of Pete Dye's designs. The seedbed varies in depth from 8 to 30 inches, making irrigation management extremely difficult.

Tommy Witt

To make matters worse, the course is located in very hilly terrain, and several of the greens suffer during hot weather from poor air circulation. The combination of consistently high relative humidity, very high summer temperatures, and over 43,000 rounds of golf each year makes this course as much a challenge as any golf course superintendent would want.

The bermudagrasses are well adapted to the area, and they present no maintenance or playability problems to speak of. The St. Augustine, on the other hand, has been poorly received by the golfers, and has caused many problems as collars bordering our bentgrass greens. Not only can the golfers not easily negotiate chip shots from the St. Augustine, but the water requirements and management practices needed for bentgrass and St. Augustine are so dramatically different, keeping them both in good condition is nearly impossible. Brown patch and leafspot are the major disease problems we encounter with St. Augustine, and the encroachment of this grass into the aprons, tees, and fairways is an important concern.

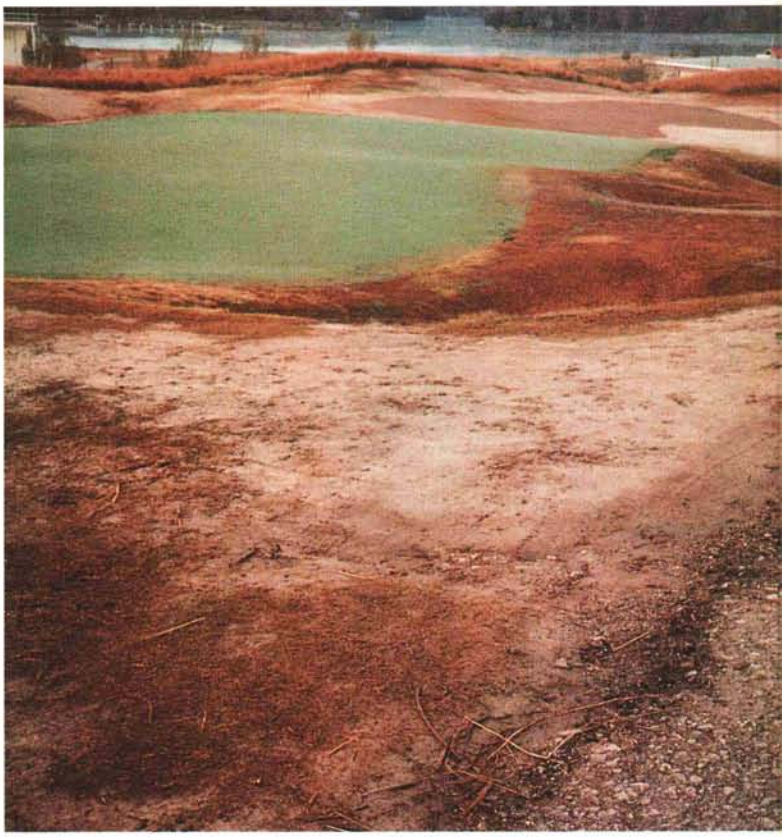
Because of heavy play, the centipede grass in the roughs is rarely given the opportunity to reach an optimum or quality condition. This grass species simply cannot tolerate the traffic, and as a result, the leaf blades turn a reddish color and become thin and worn. Normally preferring a lower soil pH, the centipede does not prosper in the 8.5 pH soils native to the area. Although several sulfur applications are made each year to reduce the effects of the high pH of the soil and irrigation water, results from these efforts have been minimal.

The grass species used in the waste areas, such as grama, love, bluestem, and buffalograss do very well. These

A view of the various grasses when they are all in optimum condition at the same time.

A view of grasses when they are not in the same quality condition at the same time. The centipede rough goes off-color earlier in the fall than the bermudagrass.

A mixture of native grasses such as grama, love, buffalograss, and bluestem are established in the waste areas.



Centipede and St. Augustine proved to be ineffective on collars as far as playability and wear tolerance were concerned.

grasses appear at home, and they require minimal maintenance. Buffalograss turns a brown color without regular irrigation, contrasting noticeably with the dark green bermudagrass fairways, and making the area look unkempt and neglected.

Dye used such a variety of grasses on the course to produce an interesting contrast of colors and textures. Each grass naturally produces a different shade of green and has a characteristic growth habit. During the several weeks of the year when all the species reach their optimum condition, the appearance is extremely impressive, just as Dye had envisioned. The fairways, roughs, greens, and aprons are all different shades of green, and the golfers' target areas stand out. Unfortunately, this effect occurs for just a brief period each year, leaving the course in a rather disheveled state during most of the season.

Several years of working with these grasses has led me to draw some conclusions:

- Not all these species are well adapted to local soil and climatic conditions.
- The consistency and appearance of the course is very difficult to maintain because of the reaction of the different species to seasonal weather differences.
- Mowing patterns are limited by the distinct mowing needs of each grass species.
- Certain species produce better playing surfaces than others. St. Augustinegrass should not be used in important play areas.
- Each species needs specific management practices. Maintaining good quality turf under such conditions requires a high degree of supervision and a good team of qualified maintenance personnel.
- Not all species tolerate heavy traffic. Those that don't should be used only in less trafficked areas.

In conclusion, selecting grasses for golf courses is not such a difficult task, and it doesn't have to lead to the kind of experience we've had at Austin Country Club. Several guidelines should be considered:

1. Use grasses native to the area, those that tolerate the local climate and soil conditions.

2. Use grasses that can handle the amount of traffic expected, and then some.

3. Use grasses with qualities and characteristics that will correspond to the type of budget you will be expected to operate within.

4. Use grasses adaptable enough to be maintained for both membership and tournament play.

It is difficult enough for today's golf course superintendent to maintain high-quality turfgrasses and golf courses when native, proved grass species are used, but the task is much greater when grass species are selected for simple aesthetic appeal, rather than basic agronomic needs. In these instances we are operating in an atmosphere where a moment's mistake can result in disaster.