

## NATIONAL BENTGRASS VARIETY TRIALS

### (Preliminary First Year Results)

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A "Field Day" for the National Bentgrass Trials was held at the Sunnyvale Municipal Golf course on August 27, 1992. This golf course is under the supervision of Mr. Curtis Black and the variety trials are under the direction of Ali Harivandi, University of California, Cooperative Extension. This location is one of sixteen locations in the U.S. for National Bentgrass Variety Trials. The collection of commercial and new experimental varieties for these trials is under the direction of U.S.D.A. Varieties for evaluation are submitted by private seed companies and public institutions to U.S.D. A. which then distributes seeds to cooperators for evaluation trials.

Two bentgrass species are used for turf on greens and tees. These are creeping bentgrass (*Agrostis palustris* Huds.) and colonial bentgrass (*Agrostis tenuis* Sibth.). Both of these species have low tolerance to drought, heat and wear, and are highly susceptible to diseases and thatch build up. Stolons of creeping bentgrass develop roots and shoots at their nodes, giving rise to the nickname "creeping". Colonial bentgrass by contrast has minimal creeping tendencies since stolons, or runner, growth from the crown of the plant is reduced or absent. Various bentgrass cultivars produce a board range of colors, from greenish-yellow to dark green and dark greenish-

blue. Golf greens planted with creeping bentgrass are mostly cut to a height of less than 1/4 in. and tees are cut at a height of 1/2 in. Golf greens cut very closely may need 12-18 pounds of nitrogen per 1000 ft.<sup>2</sup> per year; cut slightly higher, nitrogen requirements is reduced considerably. Bentgrasses are extremely susceptible to most diseases such as Pythium blight, Fusarium blight, Fusarium patch, brownpatch, Helminthosporium spp. diseases and dollar spot. Varieties Penncross, Seaside and Emerald are common creeping bentgrass cultivars used on golf greens in California.

### Materials and Methods

Preparation of the sites at the Sunnyvale Golf Course began in 1989. Two of the three sites were prepared by mixing 2 inches of organic matter into 6 inches of top soil with a rototiller. One of these sites is managed as a golf tee/fairway and the other site is managed as a golf green. The third site was prepared by replacing the native soil with 1 foot of pure sand. The sand was low in calcium and phosphorous. This was corrected by adding the appropriate amounts of gypsum and single superphosphate. The sand base site is also managed as a golf green. Varieties were planted (1/2 lb/1000 ft<sup>2</sup>) in March, 1990 in a randomized complete block design, in 10 ft x 10 ft plots and 3 replications. Fertilization and irrigation is done as needed. The tee site on the soil is mowed at 5/8 in. on Mondays and Fridays. Greens are mowed at 5/32 in. on Saturdays, Tuesdays and Thursdays. Twenty varieties were entered in each replication for each soil. Three of the varieties are colonial bentgrass, one dryland bentgrass (*Agrostis castellana*) one browntop bentgrass (*Agrostis cappillaris*) and the rest are creeping bentgrass. Not all of the same varieties were used on each of the soils. This National Bentgrass Trial will be completed in 1994 after three years of investigation.

Starting in January 1991 various data are taken on each plot. Overall quality on a scale of 1-9 (9 best) are taken on a monthly basis. Density on a scale of 1-9 (9 best) and percent (%) ground cover are taken on a quarterly basis. Color ratings are taken one time per year during October or November when the least amount of environmental stress is present and the full genetic potential for any given variety can be expressed. The first color rating was taken when the plantings were more than one year old in order to eliminate false color expression of juvenile plants. Thatch development is taken one time per year during July or August. Annual bluegrass (*Poa annua*) invasion estimates (percent of stand) is taken on a quarterly basis. Evaluation for diseases, insects, or environmental stresses are recorded if they appear and are widespread.

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Progress reports, including the rating data, are released annually. Final results and recommendations will be available in 1993.

In addition to significant financial support of this project by the City of Sunnyvale Municipal Golf course, the following agencies have also contributed financially to the construction and maintenance of the project: O.M. Scott, Pacific Sod, R.V. Cloud, Shelton Transfer, Sierra Pacific, United Agri Products and WestStar.

**Results and Discussion**

The following results are preliminary. Overall quality ratings are the means of six observations. The final ratings will be the mean of thirty-six observations. Density and percent of ground cover are means of three observations while the final ratings will be means of twelve observations. Thatch ratings are one observation and annual bluegrass invasion ratings are the mean of two observations.

**SOIL SITE, TEE**

**Turf Quality** - Results from the site managed as a tee indicate that colonial bentgrass varieties (Tracenta, Bardot and Allure), the dryland variety (BR 1518) and the browntop variety (Egmont) are inferior to the creeping varieties with overall quality ratings of 4.4, 4.8, 5.3, 4.0 and 5.6 respectively. The top performing

creeping varieties are Carmen, Cobra, Putter, Regent and TAMU 88-1, with overall quality ratings of 7.1, 7.0, 6.9, 6.8 and 6.8, respectively.

**Thatch Development** - Results from the soil site managed as a tee indicate the colonial bentgrass varieties (Tracenta, Bardot and Allure), a the dryland variety (BR 1518) and the browntop variety (Egmont) develop the least amount of thatch with depths of 0.55, 0.56, 0.76, 0.46 and 0.58 inches. respectively.

**Annual Bluegrass Invasion** - Results from the soil site managed as a tee indicate colonial bentgrass varieties (Tracenta, Bardot and Allure), the dryland variety (BR 1518), the browntop variety (Egmont) and the creeping varieties (Emerald, National and Seaside) have the highest percentage of annual bluegrass with 20.0, 19.2, 12.5, 15.0, 15.0, 21.7, 21.3 and 15.8 percent (%), respectively. The creeping varieties (Penneagle, Putter, Cobra, Pennncross and TAMU 88-1) have the lowest percentage annual bluegrass invasion with 1.3, 2.0, 3.7, 5.0 and 5.0 percent (%), respectively.

**SOIL SITE, GREEN**

**Turf Quality** - Results from the soil site managed as a green indicate that the colonial bentgrass varieties (Tracenta, Bardot and Allure), the dryland variety (BR 1518) and the browntop variety (Egmont) are inferior to the creeping bentgrass varieties with overall quality ratings of 4.2, 4.7, 4.6, 3.4 and 5.2, respectively. The best performing creeping bentgrass varieties are 88 CBL, SR 1020, Pennlinks, Carmen and Lopez with overall quality ratings of 7.1, 7.1, 6.9, 6.7 and 6.7, respectively.

**Thatch Development** - Results from the soil site managed as a green indicate that the colonial bentgrass varieties (Bardot and Allure), the dryland variety (BR 1518), the browntop variety (Egmont) and the creeping variety

(Cobra) develop the least amount of thatch with depths of 0.93, 1.05, 0.58, 0.97 and 0.97 in., respectively. The creeping varieties (Pro/Cup, Emerald, Pennlinks, Putter and Lope) have the most thatch developed with 1.37, 1.30, 1.26, 1.22 and 1.22 in., respectively.

**Annual Bluegrass Invasion** - Results from the soil site managed as a green indicate that the colonial bentgrass varieties (Tracenta, Bardot and Allure), the dryland variety (BR 1518), and the creeping variety (Seaside) have the highest percentage annual bluegrass invasion with 46.7, 40.0, 38.3, 53.3 and 40.0 percent (%), respectively. The creeping varieties (SR 1020, Pennlinks, Pro/Cup, Carmen and Putter) have the lowest percentage annual bluegrass invasion with 2.3, 4.3, 4.3, 4.3 and 5.0, respectively.

**SAND SITE, GREEN**


**Turf Quality** - Results from the sand site managed as a green indicate the colonial bentgrass varieties (Tracenta, Bardot and Allure), the dryland variety (BR 1518) and the browntop variety (Egmont) are inferior to the creeping varieties with overall quality ratings of 4.2, 4.4, 4.1, 3.4 and 5.5, respectively. The best performing creeping varieties are Cobra, SR 1020, TAMU 88-1, Pro/Cup and MSCB-8 with overall quality ratings of 6.6, 6.4, 6.4, 6.3 and 6.3, respectively.

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# THE GAME OF GOLF IS PLAYED ON GRASS

**Thatch Development** - Results from the sand site managed as a green indicate the colonial bentgrass varieties (Tracenta and Bardot), the browntop variety (BR 1518) and the creeping varieties (UM 84-01 and Lopez) develop at the least amount of thatch with depths of 0.87, 1.02, 0.75, 0.79 and 0.80 in., respectively. the creeping varieties TAMU 88-1, cobra, Emerald and SR 1020 have the most thatch development with 1.09, 1.07, 1.05 and 1.05 in., respectively.

**Annual Bluegrass Invasion** - Results from the sand site managed as a green indicate the colonial bentgrass varieties (Tracenta and Allure), the dryland variety (BR 1518) and the creeping varieties (National and 88 CBE) have the highest percentage annual bluegrass invasion with 36.7, 45.0, 46.7, 35.0 and 26.7 percent (%), respectively. The creeping varieties (SR 1020, Putter, Cobra, TAMU 88-1 and Pennlinks) have the the lowest percentage annual bluegrass invasion with 3.7, 4.0, 4.0, 5.0 and 6.0 percent (%), respectively.

In summary creeping bentgrass (*Agrostis palustris* Huds.) has better quality, more thatch development and less annual bluegrass invasion than other bentgrass species at this location. the increased thatch development in creeping species is undoubtedly due to its stoloniferous nature. Less thatch development was observed on the sand site than on the soil sites for all bentgrass species.

Since the available data is limited, the results reported here should be viewed only as preliminary. Varieties may perform differently in the years to come as they are subjected to a wide range of climatic, management and pathogenic stresses. Accordingly, no specific recommendations on choosing any of the tested varieties can be given at this time.

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When the golf course is in good shape, everything at the club seems to go well. How obvious...or is it!

Why is it, then, that today's golf course superintendent must compete—perhaps struggle is a better word—for the machinery, manpower, materials, and the “the budget” to do his or her job? Sometimes clubs and courses appreciate the obvious. If the golf course is in good shape, the rest of the facility hums. People bring guests who pay guest or green fees. This factor impacts favorably on the food and beverage portion of the club, and it helps the facility's cash flow. Members and guests buy logo shirts and sweats, benefiting the golf professional. Everyone is happy and the club or facility is healthy.

Consider what happens, though, when several greens or fairways are lost, tees are divoted and devoid of turf, the roughs and stream banks are not well cut, and trash, tree limbs, and litter are scattered about the course, who is happy then? Would you bring guests or sponsor business outings at your club or course? Probably not, or only with a multitude of apologies and excuses.

With less play, food and beverage sales suffer and golf carts go unrented. Golfshirts remain on the shelves and everyone begins to rumble. Attention is then focused on you guessed it, the golf course superintendent.

Do you think a golf course superintendent wants to present a shabby golf course? Is that individual, as a professional, pleased with what he or she sees out there? No, not in the least. so why does it happen?

I submit it often is a question of budget priorities. The golf course is not getting its fair share of the golf course income.

Specifically, what percentage of course income is being used to maintain the golf course? Do you think it is 20%. 33% or 50%?

Figure it out. If the club has an income of, say, \$2 million per year and the golf course maintenance budget is \$4000,000 per year, then the maintenance budget is 20% of the entire club or golf course income. Twenty percent does not sound like very much, and often it isn't enough. Where is the other 80% going?

Shouldn't it be a goal to allow the golf course to be maintained at a level where all the departments are humming and everyone is happy?

Only you can know. It bothers me that course maintenance budgets often do not receive their fair share of the club income, and when the course is not perfect, the superintendent is criticized. I submit the real culprit is the budget policy—not providing what is needed to do the job well.

Perhaps a better sales pitch is needed. I hope these comments will help people realize the obvious...the game of golf is played on grass, and providing properly for its maintenance should be a course's number one priority.

Article written by Stanley J. Zontek, Director, Mid-Atlantic Region USGA Green Section. Article taken from Hole Notes, Minnesota GCSA, June 1992.

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