

EXECUTIVE SUMMARY

On-Site Testing of Grasses for Overseeding of Bermudagrass Fairways

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With the initiation of on-site testing of bentgrass and bermudagrass on putting greens, interest is now increasing for the evaluation of other grasses used on golf courses. Grasses are needed that provide exceptional playing surfaces with less pesticides, fertilizer and water. Therefore, grasses that have superior drought, cold, heat, disease and insect resistance need to be identified. Overseeding bermudagrass fairways is a common practice throughout the southern half of the United States. Millions of pounds of seed are bought and sown each autumn on golf courses in this region. Golf course owners, managers and superintendents seek grasses that establish quickly, exhibit exceptional playability, are aesthetically pleasing and require less inputs. This project will evaluate new cultivars on bermudagrass fairways at golf courses in the Southern and Western U.S. This on-site testing program will provide scientific information of a more applied nature about cultivars for overseeding.

The evaluation trials are jointly sponsored by the Golf Course Superintendents Association of America (GCSAA), the United States Golf Association (USGA) Green Section and the National Turfgrass Evaluation Program (NTEP). Ten evaluation trial sites have been chosen. Trials are positioned strategically in the following areas: southern California, Arizona, Houston, TX, Dallas, TX, Mississippi, central Florida, Myrtle Beach, SC, Virginia, Atlanta, GA, and St. Louis, MO. Trials are conducted with named cultivars and commercially available blends or mixtures. The trials are located on active play sites where golfers hit fairway golf shots and/or drive golf carts. Plot size is large, 5' x 20', replicated three times.

Thirty-eight (38) entries were submitted by sponsoring companies for inclusion in this trial. In addition, four standard entries chosen by the advisory committee for comparison purposes were included bringing the total number of entries to forty-two (42). Seed was received in late August and divided into the following seeding rates: perennial ryegrass - 300, 450 or 600 lbs./Acre; *poa trivialis* - 100 or 200 lbs./Acre; perennial ryegrass/*poa trivialis* mixtures - 250 or 400 lbs./Acre. Locations received seeding rates for each species based on common seeding rates for each area. Seed for each location was prepared and mailed in mid-September, 1999. Tests were seeded in September and October. Data is currently being collected on establishment rate, transition from bermudagrass to overseeding grass and turfgrass quality.

YEAR-END REPORT - USGA RESEARCH
November 8, 1999

I. **Title**

On-site Testing of Grasses for Overseeding of Bermudagrass Fairways

II. **Investigator/Cooperator**

Mr. Kevin Morris, Executive Director, National Turfgrass Evaluation Program
Dr. Jeffrey Nus, Director of Research, GCSAA
Dr. Michael Kenna, Director of Research, USGA Green Section

III. **Purpose**

To evaluate commercially available cultivars, blends and mixtures for their usefulness in overseeding of bermudagrass fairways

IV. **Location of Project**

Ten golf courses across the southern half of the United States (see Table 1.)

V. **Introduction**

With the initiation of on-site testing of bentgrass and bermudagrass on putting greens, interest is now increasing for the evaluation of other grasses used on golf courses. Grasses are needed that provide exceptional playing surfaces with less pesticides, fertilizer and water. Therefore, grasses that have superior drought, cold, heat, disease and insect resistance need to be identified.

Overseeding bermudagrass fairways is a common practice throughout the southern half of the United States. Millions of pounds of seed are bought and sown each autumn on golf courses in this region. Golf course owners, managers and superintendents seek grasses that establish quickly, exhibit exceptional playability, are aesthetically pleasing and require less inputs. This project will evaluate new cultivars on bermudagrass fairways at golf courses in the Southern and Western U.S. This on-site testing program will provide scientific information of a more applied nature about cultivars for overseeding.

Information from this project will be valuable to the golfing industry because it will determine the adaptation of grasses for golf course use. Information obtained from on-site testing will be of particular value to plant breeders, researchers, extension educators, USGA agronomists, golf course architects, and superintendents who need to select the best adapted cultivars for overseeding in a particular regional climate.

VI. **Methods**

The evaluation trials are jointly sponsored by the Golf Course Superintendents

Association of America (GCSAA), the United States Golf Association (USGA) Green Section and the National Turfgrass Evaluation Program (NTEP). Trial sites are located on golf courses near a land grant university with a turfgrass research program or in a major metropolitan area which is readily accessible to a university turfgrass scientist. Ten evaluation trial sites have been chosen. Trials are positioned strategically in the following areas: southern California, Arizona, Houston, TX, Dallas, TX, Mississippi, central Florida, Myrtle Beach, SC, Virginia, Atlanta, GA, and St. Louis, MO.

NTEP will function as the coordinating agent for this two-year cultivar trial. Because overseeded grasses provide a temporary playing surface mainly in fall and winter and are reseeded each year, cultivars will be seeded in two consecutive years (fall 1999 and fall 2000). Trials will be conducted under the leadership of a university turfgrass research scientist (i.e, research cooperator, see Table 1), who has a faculty appointment. This person has signed a research agreement and will be responsible for establishment of the trial, coordination of the maintenance regime, collection and submission of the data to NTEP.

NTEP will solicit entries for the trial from sponsoring companies. Trials will be conducted with named cultivars and commercially available blends or mixtures. Various species used in overseeding, such as perennial ryegrass and *poa trivialis* will be allowed. Experimental lines that will be released in the immediate future (i.e. before the end of the testing cycle) may also be included in this trial at the sponsor's discretion.

Trials are located on active play sites where golfers hit fairway golf shots and/or drive golf carts. Plot size is large, 5' x 20', replicated three times. A large plot size allows for a greater distribution of traffic and divoting. Entries will be seeded in exactly the same location on each course for each year. This will allow researchers to identify entries that persist and never transition out.

Host clubs will provide daily maintenance of the fairway site. However, an advisory committee consisting of representatives from GCSAA, USGA, NTEP, universities and the turfgrass seed industry will provide recommended establishment and maintenance procedures. The superintendents chosen have excellent skills and a strong record of supporting GCSAA and the USGA. Each superintendent also has a good relationship with the university scientist, who will have ultimate responsibility for the trial.

NTEP will administer the program and its funding, set the advisory committee and gather their input and recommendations for the trial. NTEP will organize and distribute the seed which will constitute entries for each trial location. Also, NTEP will provide maintenance and data collection protocols to each site, collect, analyze and disseminate the performance data in annual and final reports, and conduct an annual site visit of each trial site.

The research cooperator will be responsible for data collection. The following data will be collected from each trial:

1. Percent establishment rate (4-6 weeks after seeding)
2. Turfgrass quality (monthly during winter, 2 - 4 times per month during spring and

- fall transition period)
3. Plot color, genetic color (twice - late fall/early winter and spring)
 4. Rate or speed of transition from bermudagrass to overseeded grass in fall (2 - 4 times per month during fall)
 5. Rate or speed of transition from overseeded grass to bermudagrass in spring (2 - 4 times per month during spring)
 6. Environmental stress, traffic and divoting damage, disease and insect damage and other data deemed appropriate and feasible by the research cooperator.

The research cooperator will be responsible for submission of data to NTEP by August 1 of each year. Annual funding will be based on receipt of a complete set of data by the August 1 deadline.

VII. Results and Discussion

Thirty-eight (38) entries were submitted by sponsoring companies for inclusion in this trial (see Table 2). In addition, four standard entries chosen by the advisory committee for comparison purposes were included bringing the total number of entries to forty-two (42). The breakdown of entries is as follows:

Single perennial ryegrass cultivars	19
Perennial ryegrass blends	10
Single intermediate ryegrass cultivars	2
Intermediate rye/Perennial rye mixtures	1
Single annual ryegrass cultivars	1
Single <i>Poa trivialis</i> cultivars	5
Perennial rye/ <i>Poa trivialis</i> mixtures	4

Seed was received in late August and divided into the following seeding rates: perennial ryegrass - 300, 450 or 600 lbs./Acre; *poa trivialis* - 100 or 200 lbs./Acre; perennial ryegrass/*poa trivialis* mixtures - 250 or 400 lbs./Acre. Locations received seeding rates for each species based on common seeding rates for each area.

Seed for each location was prepared and mailed in mid-September, 1999. Tests were seeded in September and October. Data is currently being collected on establishment rate, transition from bermudagrass to overseeding grass and turfgrass quality.

VIII. Research Schedule/Anticipated Results

Data collected in fall 1999 - spring 2000 will be submitted to NTEP by August 1, 2000. Data will be reviewed, statistically analyzed and published in early fall 2000. The same seed lots used in 1999 have already been weighed and packaged for shipment in September 2000. Plots will be seeded again in 2000 as in 1999 and data collection will follow the same procedures. Information will be gained on turfgrass performance under real-world conditions including establishment, compatibility with bermudagrass, color, disease resistance and transition rate.

TABLE 1. TRIAL LOCATIONS - ON-SITE TESTING GRASSES FOR OVERSEEDING OF BERMUDAGRASS FAIRWAYS

Sponsored by USGA, GCSAA and NTEP

Location	Golf Course	Superintendent	Research Cooperator	University/Institution
Tucson, AZ	Tucson Country Club	Marty Wells	Dr. David Kopec	Arizona
Palm Desert, CA	Mountain Vista	Nancy Dickens	Dr. Robert Green Mr. Mike Henry Mr. Jeff Place	California-Riverside Calif. Cooperative Ext. C. O. D.
Orlando, FL	Grand Cypress	Tom Alex	Dr. Al Dudeck	Florida
Duluth (Atlanta), GA	Atlanta Athletic Club	Ken Mangum	Dr. Gil Landry	Georgia
Mississippi St., MS	Mississippi State Univ.	Pat Sneed	Dr. Jeff Krans	Mississippi State
Crescent, MO (St. Louis)	Players Club at St. Louis	Todd Marquette	Dr. Erik Ervin	Missouri
Myrtle Beach, SC	Blackmoor	Bob Zuercher	Dr. Bruce Martin	Clemson
Garland (Dallas), TX	Fire Wheel Golf Park	Gary Chambers	Dr. Milt Engelke	Texas A&M-Dallas
The Woodlands, TX (Houston)	The Woodlands	Scott Hamilton, Gant Austin	Dr. Richard White	Texas A&M-College Station
Charlottesville, VA	Glenmore C.C.	Tim Thomas	Dr. David Chalmers	Virginia Tech

TABLE 2. ON-SITE TESTING OF GRASSES FOR OVERSEEDING OF BERMUDAGRASS FAIRWAYS

Entries and Sponsors

Entry #	Name	Species or composition	Sponsor
1	Allsport	perennial ryegrass	LESCO, Inc.
2	LS-DE1	perennial ryegrass	LESCO, Inc.
3	Proam	poa trivialis	LESCO, Inc.
4	Barlennium	perennial ryegrass	Barenbrug USA
5	Pirouette	perennial ryegrass	Barenbrug USA
6	Bariviera	poa trivialis	Barenbrug USA
7	Professional's Select	40% Windstar, 35% Sonata, 25% Jet p. ryegrass blend	Pennington Seed, Inc.
8	Transist	intermediate ryegrass	Pickseed West, Inc.
9	Pick HR A-97	intermediate ryegrass	Pickseed West, Inc.
10	First Cut	85% Paragon p. rye, 15% Stardust poa trivialis	Turf Merchants, Inc.
11	Brightstar II	perennial ryegrass	Turf-Seed, Inc.
12	Charger II	perennial ryegrass	Turf-Seed, Inc.
13	Citation III	perennial ryegrass	Turf-Seed, Inc.
14	Brightstar II + Winterplay	85% Brightstar II p. rye, 15% Winterplay poa trivialis	Turf-Seed, Inc.
15	Charger	perennial ryegrass	Standard Entry
16	Citation III + Winterstar	85% Citation III p. rye, 15% Winterstar poa trivialis	Turf-Seed, Inc.
17	Winterplay	poa trivialis	Standard Entry
18	ABT-99-3.268	annual ryegrass	AgriBioTech, Inc.
19	Paragon	perennial ryegrass	Turf Merchants, Inc.
20	PST-3BK-99	perennial ryegrass	Pure-Seed Testing, Inc.
21	Fiesta 3	perennial ryegrass	Pickseed West, Inc.
22	Futura 2500	33% Cutter p. rye, 33% Sunshine p. rye, 33% Transist intermediate rye	Pickseed West, Inc.
23	MED-007	25% JR-151, 25% JR-142, 25% JR-128, 25% JR-265 p. ryegrass blend	Simplot Turf & Horticulture
24	Capri	perennial ryegrass	DLF Trifolium
25	Leaderboard	34% Pennant II, 33% Panther, 33% Seville II p. ryegrass blend	Independent Seeds
26	Seville II	perennial ryegrass	Independent Seeds
27	Snowbird	poa trivialis	Independent Seeds
28	MP58	perennial ryegrass	Jenks Seed Connection
29	Prime	33% Elfkin, 33% MP58, 33% MP88 p. ryegrass blend	Jenks Seed Connection
30	Elfkin	perennial ryegrass	Jenks Seed Connection
31	MP111	perennial ryegrass	Cascade International Seed Co.
32	Mountain View Seed Blend 1	40% Pearl, 30% Pageant II, 30% EP57 p. ryegrass blend	Mountain View Seed Co.
33	Mountain View Seed Blend 2	40% EP56, 30% Pearl, 30% Academy p. ryegrass blend	Mountain View Seed Co.
34	Mountain View Seed Blend 3	40% EP57, 30% EP56, 30% Flash p. ryegrass blend	Mountain View Seed Co.
35	Essence	perennial ryegrass	Cebeco International Seeds
36	Top Hat	perennial ryegrass	Standard Entry
37	Cebeco Blend 1	33% Top Hat, 33% R2, 33% Gator II p. ryegrass blend	Cebeco International Seeds
38	Sabre	poa trivialis	Standard Entry
39	Tourstar	34% Imagine, 33% Ice, 33% Lynx p. ryegrass blend	AgriBioTech, Inc.
40	Marvelgreen + Laser	40% Palmer III, 20% Prelude III, 20% Phantom p. rye, 15% Laser poa triv.	AgriBioTech, Inc.
41	Phantom	perennial ryegrass	AgriBioTech, Inc.
42	Marvelgreen Supreme	50% Palmer III, 25% Prelude III, 25% Phantom p. ryegrass blend	AgriBioTech, Inc.