

CONTENTS

**ON-SITE TESTING OF BENTGRASS AND BERMUDAGRASS CULTIVARS FOR GOLF
COURSE PUTTING GREENS: INTRODUCTION.....1**

ON-SITE PUTTING GREEN TEST LOCATIONS.....3

USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST, ENTRIES AND SPONSORS.....4

**Table 1A 1998 Management - On-site Bermudagrass Test at Birmingham, AL
(Country Club of Birmingham).....5**

**Table 1B 1999 Management - On-site Bermudagrass Test at Birmingham, AL
(Country Club of Birmingham).....6**

**Table 1C 2000 Management - On-site Bermudagrass Test at Birmingham, AL
(Country Club of Birmingham).....7**

**Table 1D 2001 Management - On-site Bermudagrass Test at Birmingham, AL
(Country Club of Birmingham).....8**

**Table 1E Mean Turfgrass Quality and Other Ratings of Bermudagrass Cultivars in the
1998 USGA/GCSAA/NTEP On-site Bermudagrass Test at Birmingham, AL
(Country Club of Birmingham).....9**

**Table 2A 1998 Management - On-site Bermudagrass Test at Mobile, AL
(Country Club of Mobile).....10**

**Table 2B 1999 Management - On-site Bermudagrass Test at Mobile, AL
(Country Club of Mobile).....11**

**Table 2C 2000 Management - On-site Bermudagrass Test at Mobile, AL
(Country Club of Mobile).....12**

**Table 2D 2001 Management - On-site Bermudagrass Test at Mobile, AL
(Country Club of Mobile).....13**

**Table 2E Mean Turfgrass Quality and Other Ratings of Bermudagrass Cultivars in the
1998 USGA/GCSAA/NTEP On-site Bermudagrass Test at Mobile, AL
(Country Club of Mobile).....14**

**Table 3A 1998 Management - On-site Bermudagrass Test at Green Valley, AZ
(Country Club of Green Valley).....15**

**Table 3B 1999 Management - On-site Bermudagrass Test at Green Valley, AZ
(Country Club of Green Valley).....16**

**Table 3C 2000 Management - On-site Bermudagrass Test at Green Valley, AZ
(Country Club of Green Valley).....17**

CONTENTS
(Continued)

Table 3D	2001 Management - On-site Bermudagrass Test at Green Valley, AZ (Country Club of Green Valley).....	18
Table 3E	Mean Turfgrass Quality and Other Ratings of Bermudagrass Cultivars in the 1998 USGA/GCSAA/NTEP On-site Bermudagrass Test at Green Valley, AZ (Country Club of Green Valley).....	19
Table 4A	1998 Management - On-site Bermudagrass Test at Murrieta, CA (SCGA Members Club).....	20
Table 4B	1999 Management - On-site Bermudagrass Test at Murrieta, CA (SCGA Members Club).....	22
Table 4C	2000 Management - On-site Bermudagrass Test at Murrieta, CA (SCGA Members Club).....	24
Table 4D	2001 Management - On-site Bermudagrass Test at Murrieta, CA (SCGA Members Club).....	27
Table 4E	Mean Turfgrass Quality and Other Ratings of Bermudagrass Cultivars in the 1998 USGA/GCSAA/NTEP On-site Bermudagrass Test at Murrieta, CA (SCGA Members Club).....	28
Table 5A	1998 Management - On-site Bermudagrass Test at Hobe Sound, FL (The Jupiter Island Club).....	29
Table 5B	1999 Management - On-site Bermudagrass Test at Hobe Sound, FL (The Jupiter Island Club).....	30
Table 5C	2000 Management - On-site Bermudagrass Test at Hobe Sound, FL (The Jupiter Island Club).....	31
Table 5D	2001 Management - On-site Bermudagrass Test at Hobe Sound, FL (The Jupiter Island Club).....	32
Table 5E	Mean Turfgrass Quality and Other Ratings of Bermudagrass Cultivars in the 1998 USGA/GCSAA/NTEP On-site Bermudagrass Test at Hobe Sound, FL (The Jupiter Island Club).....	33
Table 6A	1998 Management - On-site Bermudagrass Test at St. Charles, MO (The Missouri Bluffs G.C.).....	34
Table 6B	Mean Turfgrass Quality and Other Ratings of Bermudagrass Cultivars in the 1998 USGA/GCSAA/NTEP On-site Bermudagrass Test at St. Charles, MO (The Missouri Bluffs G.C.).....	35

CONTENTS
(Continued)

Table 7A	1998 Management - On-site Bermudagrass Test at Dallas, TX (Bent Tree Country Club).....	36
Table 7B	1999 Management - On-site Bermudagrass Test at Dallas, TX (Bent Tree Country Club).....	37
Table 7C	2000 Management - On-site Bermudagrass Test at Dallas, TX (Bent Tree Country Club).....	38
Table 7D	2001 Management - On-site Bermudagrass Test at Dallas, TX (Bent Tree Country Club).....	39
Table 7E	Mean Turfgrass Quality and Other Ratings of Bermudagrass Cultivars in the 1998 USGA/GCSAA/NTEP On-site Bermudagrass Test at Dallas, TX (Bent Tree Country Club).....	40
Table 8A	1998 Management - On-site Bermudagrass Test at Houston, TX (Lakeside Country Club).....	41
Table 8B	1999 Management - On-site Bermudagrass Test at Houston, TX (Lakeside Country Club).....	42
Table 8C	2000 Management - On-site Bermudagrass Test at Houston, TX (Lakeside Country Club).....	43
Table 8D	Mean Turfgrass Quality and Other Ratings of Bermudagrass Cultivars in the 1998 USGA/GCSAA/NTEP On-site Bermudagrass Test at Houston, TX (Lakeside Country Club).....	44

ON-SITE TESTING OF BENTGRASS AND BERMUDAGRASS CULTIVARS FOR GOLF COURSE PUTTING GREENS

INTRODUCTION

There is growing interest within the golfing industry to develop on-site testing of turfgrass cultivars. This concept is not new, but has not been a common practice in recent years. Therefore, the Golf Course Superintendents Association of America (GCSAA), United States Golf Association Green Section (USGA), and the National Turfgrass Evaluation Program (NTEP) have agreed to revitalize on-site testing of turfgrass cultivars on golf courses, particularly on putting greens. This project conducts evaluations of new bentgrass and bermudagrass cultivars on USGA specification putting greens constructed at golf courses across the country. This on-site testing program is designed to provide scientific information of a more applied nature about putting green turfgrass cultivar performance.

Information from this project is valuable to the golfing industry. These studies will determine the adaptation of grasses for golf course use. In addition, 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 putting green cultivars for a particular regional climate.

A five-person committee composed of Dr. Jeff Nus, GCSAA Research Director; Dr. Mike Kenna, USGA Research Director; Mr. James Moore, USGA Construction Education Coordinator, Mr. Kevin Morris, NTEP Executive Director; and Dr. Bob Shearman, NTEP Special Projects Coordinator determined the trial site locations and the trial specifics. Input from golf course superintendents, USGA agronomists and turfgrass researchers assisted the committee members' decision making process.

Location & Number of Trial Sites

These cultivar evaluation trials are jointly sponsored and supported by the GCSAA, USGA-Green Section, and NTEP. The USGA funded the construction of USGA specification greens for the trials. 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. Sixteen (16) regional evaluation trial sites have been established. Trials are located in: a) northern locations for bentgrasses, b) southern locations for bermudagrass, and c) transition zone locations for both species. Trials are located where golfers practice putting and/or chipping. Host clubs provide daily maintenance of the putting green site at their own expense.

Trial Specifics

The NTEP functions as the coordinating agent for the cultivar trials. These trials are five years in duration. Trials are conducted under mutually agreed upon guidelines, procedures, and funding outlined in a research agreement agreed to and signed by the appropriate representatives of GCSAA, USGA, and NTEP and each research cooperator (i.e. university turfgrass researcher). Trials are conducted at each location under the leadership of the assigned research cooperator. These persons are responsible for establishing and conducting the trial, and collecting and transferring the data to NTEP according to the research agreement.

Trials are maintained by the golf course superintendent at each location using management procedures common to their golf course, the geographical area and in consultation with the research cooperator. No special management practices are prescribed as these trials are intended to receive real-world golf course conditions and stresses.

ON-SITE TESTING (continued)

These trials are conducted principally with commercially available, named cultivars. Experimental lines that will be commercially available in the near future (i.e. before the end of the test cycle) were also included in these trials at the sponsoring company's discretion.

The NTEP administers the program and its funding, sets the advisory committee and gathers their input and recommendations for each species trial. The NTEP organizes and distributes the seed and vegetative materials which constitute the entries for each trial location. The NTEP provides the maintenance and data collection protocols to each site; collects, analyzes and disseminates the performance data in annual and final reports; and conducts an annual site visit for each trial.

For more information or additional copies of reports, please contact:

Kevin Morris, Executive Director
National Turfgrass Evaluation Program
Beltsville Agricultural Research Center-West
Building 003 Room 217
Beltsville, Maryland 20705 USA

NTEP reports can also be found on the World Wide Web at <http://www.ntep.org>

ON-SITE PUTTING GREEN TEST LOCATIONS

Golf Course	Location	Superintendent	Research Cooperator
<i>Bentgrass only</i>			
Crystal Springs Golf Course	Burlingame, California	Ray Davies	Dr. Ali Harivandi, California Cooperative Extension
Fox Hollow at Lakewood	Lakewood, Colorado	Bruce Nelson	Dr. Tony Koski, Colorado State University
Lassing Point Golf Course	Florence, Kentucky	Jerry Coldiron	Dr. A. J. Powell, University of Kentucky
North Shore Country Club	Glenview, Illinois	Dan Dinelli	Dr. Tom Voigt, University of Illinois
Purdue University Kampen Course	West Lafayette, Indiana	Jim Scott	Dr. Zac Reicher, Purdue University
Snoqualmie Ridge C. C.	Snoqualmie, Washington	Tom Wolff	Dr. Gwen Stahnke, Washington State University
Westchester Country Club	Rye, New York	Joe Alonzi	Dr. James Murphy, Rutgers University
Westwood Golf Course	Vienna, Virginia	Walter Montross	Dr. David Chalmers, Virginia Tech University
 <i>Bentgrass and Bermudagrass</i>			
Bent Tree Country Club	Dallas, Texas	Keith Ihms	Dr. Milt Engelke, Texas A&M University
Country Club of Birmingham	Birmingham, Alabama	Lee McLemore	Dr. Elizabeth Guertal, Auburn University
Country Club of Green Valley	Green Valley, Arizona	Mike Bates	Dr. David Kopec, University of Arizona
The Missouri Bluffs	St. Charles, Missouri	Alan Zelko	Dr. Barb Corwin, University of Missouri
SCGA Members Club	Murrieta, California	John Martinez	Dr. Robert Green, University of California-Riverside
 <i>Bermudagrass only</i>			
Country Club of Mobile	Mobile, Alabama	Ron Wright	Dr. Bryan Unruh, University of Florida
Jupiter Island Club	Hobe Sound, Florida	Rob Kloska	Dr. John Cisar, University of Florida
Lakeside Country Club	Houston, Texas	Mike Sandburg	Dr. Richard White, Texas A&M University

USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST

Entries and Sponsors

Entry No.	Name	Sponsor
1	MS-Supreme	Mississippi State University
2	TifEagle	Georgia Seed Development Commission
3	Mini-Verde	Turfgrass America
4	Tifdwarf	Standard Entry
5	Champion	Coastal Turf, Inc.
6	Tifgreen	Standard Entry
7	Floradwarf	Florida Turfgrass Foundation

TABLE 1A. 1998 MANAGEMENT - ON-SITE BERMUDAGRASS TEST AT BIRMINGHAM, AL (COUNTRY CLUB OF BIRMINGHAM)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Planting date	11-Jun-98	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None	August 1998	KNO3, methylene urea	1 lb. N	Three times per year	Bensulide	
		August 1998	P2O5	1/2 lb. P			
		August 1998	K2O	1 lb. K			
FACTORS OF PLAY		September 1998	KNO3, methylene urea	1 lb. N			
Date opened for play	not yet opened	September 1998	P2O5	1/2 lb. P	INSECTICIDES		
Date closed for play		September 1998	K2O	1 lb. K			
Type of spikes allowed	softspikes	Oct.-Dec. 1998	20-5-20	0.10 lb. N	Date(s)	Product	Rate (oz./M)
Uses of green	will be used for chipping, bunker shots	2-4x/month			None		
MOWING							
Initial height	0.275"				OTHER PRODUCTS		
Current height	0.15"						
Frequency	6 days/week				Date(s)	Product	Rate (oz./M)
Type of mower	walking				None		
Rollers used	2-3 times/month						
Groomers used	groom every time green is mowed. Blades set .005" below bedknife.						
		FUNGICIDES					
CULTIVATION		Date(s)	Product	Rate (oz./M)	NOTES/COMMENTS		
Aerification - dates	Sept. 1998 - 5/8" hollow hydroject - 2x/month, March-November	every 2-3 wks, July - mid-Dec.	Alternate Banol, Alliette, Heritage and Subdue with either Mancozeb or Daconil	labeled preventative rates	Since the bermuda has been overseeded with poa trivialis, we have been spraying with our weekly bentgrass fungicide & fertilizer mix. The bermuda was covered this winter when nighttime temps. dropped below 27 degrees F.		
Aerification - type	once per week- July-Sept.						
Verticutting	once per week- July-Sept.						
Dates of topdressing	None						
Other cultural practices							

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TABLE 1B. 1999 MANAGEMENT - ON-SITE BERMUDAGRASS TEST AT BIRMINGHAM, AL (COUNTRY CLUB OF BIRMINGHAM)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Planting date	11-Jun-98	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None	March, April, June-Sept.	26-0-22 (Methylene Urea + KNO3)	1/2 lb. N	March, May, July	Bensulide	
FACTORS OF PLAY							
Date opened for play	July of 1998	April, May, Aug.	12-2-12 (Natural Organic + Methylene Urea)	0.6 lb. N	INSECTICIDES		
Date closed for play					Date(s)	Product	Rate (oz./M)
Type of spikes allowed	softspikes						
Uses of green	chipping, bunker practice	March-November	20-5-20 (ProSol foliar)	1/32 to 1/10 lb N bi-weekly	As needed in Summer for cutworms and army worms	Talstar	
MOWING							
Initial height	0.25"				OTHER PRODUCTS		
Current height	0.14"				Date(s)	Product	Rate (oz./M)
Frequency	6-7 days/week						
Type of mower	walking						
Rollers used							
Groomers used	6-7 days/week				None		
CULTIVATION		FUNGICIDES					
Aerification - dates	1" deep - early May, 1/2 " hollow tine -early July, 5/8 " hollow tine - late Aug.	Date(s)	Product	Rate (oz./M)			
Aerification - type	hydroject - bi-weekly From April to Oct.	Sprayed bi-weekly in Summer	Consyst	4 oz./1000 sq.ft.	NOTES/COMMENTS		
Verticutting	Lightly every two weeks- June-Sept.				Overseeded with Poa trivialis and covered when temperatures dropped below 24 degrees		
Dates of topdressing	Heavy after aerifications, Lightly bi-weekly						
Other cultural practices	Rolling as needed						

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TABLE 1C. 2000 MANAGEMENT - ON-SITE BERMUDAGRASS TEST AT BIRMINGHAM, AL (COUNTRY CLUB OF BIRMINGHAM)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Planting date	11-Jun-98	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None	March, April, May	26-0-22 (Nutralene+KNO ₃)	0.5 lb. N	March, May, July	Bensulide	
FACTORS OF PLAY		June, July	Anderson's (22-0-22)	0.5 lb. N			
		June, July	K ₂ SO ₄ (0-0-24)	1 lb. K ₂ O			
		March-November	20-5-20 ProSol foliar	1/16 lb. N			
Date opened for play	July of 1998. Open year				INSECTICIDES		
Date closed for play	round				Date(s)	Product	Rate (oz./M)
Type of spikes allowed	softspikes						
Uses of green	chipping, bunker practice				for cutworms,	Talstar	
MOWING					armyworms and a few		
					mole crickets		
Initial height	0.25"	FUNGICIDES					
Current height	0.125-0.150"	Date(s)	Product	Rate (oz./M)			
Frequency	6-7 days/week				OTHER PRODUCTS		
Type of mower	Toro 800 walk				Date(s)	Product	Rate (oz./M)
Rollers used		Fungicides are sprayed	Alliette	4			
Groomers used	6-7 days/week	biweekly in summer	Banol	2			
		depending on weather	Subdue Maxx	1			
		conditions. Big	Dithane	4	None		
CULTIVATION		problem with pythium	Daconil Ultrex	4-8 oz.			
Aerification - dates	5/8" hollow - June. 1/4"	so Alliette, Banol,	Heritage	0.4			
Aerification - type	hollow tine- July & August.	Subdue, and Heritage	Consynt	4			
	Graden - Sept. 1.	are rotated and sprayed	Terrazole	6			
		on a two weeks			NOTES/COMMENTS		
Verticutting	Lightly verticut every 3	schedule.			Overseeded with Poa trivialis and covered when temperatures dropped below 24 degrees. Areas of green that get the most splash from bunkers are healthier. No discernable layer underneath. Weekly topdressing would probably be better.		
	weeks or so.						
Dates of topdressing	Heavy after aerifications,						
	Lightly bi-weekly						
Other cultural practices	Rolling as needed						

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TABLE 1D. 2001 MANAGEMENT - ON-SITE BERMUDAGRASS TEST AT BIRMINGHAM, AL (COUNTRY CLUB OF BIRMINGHAM)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Planting date	11-Jun-98	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None	March, April, May	26-0-22 (Nutralene+KNO ₃)	0.5 lb. N	March, May, July	Bensulide	
FACTORS OF PLAY		June, July	Anderson's (22-0-22)	0.5 lb. N			
		June, July	K ₂ SO ₄ (0-0-24)	1 lb. K ₂ O			
		March-November	20-5-20 ProSol foliar	1/16 lb. N			
Date opened for play	July of 1998. Open year				INSECTICIDES		
Date closed for play	round				Date(s)	Product	Rate (oz./M)
Type of spikes allowed	softspikes						
Uses of green	chipping, bunker practice				for cutworms,	Talstar	
MOWING					armyworms and a few		
					mole crickets		
Initial height	0.25"	FUNGICIDES					
Current height	0.125-0.150"	Date(s)	Product	Rate (oz./M)			
Frequency	6-7 days/week				OTHER PRODUCTS		
Type of mower	Toro 800 walk				Date(s)	Product	Rate (oz./M)
Rollers used		Fungicides are sprayed	Alliette	4			
Groomers used	6-7 days/week	biweekly in summer	Banol	2			
		depending on weather	Subdue Maxx	1			
		conditions. Big	Dithane	4	None		
CULTIVATION		problem with pythium	Daconil Ultrex	4-8 oz.			
Aerification - dates	5/8" hollow - June. 1/4"	so Alliette, Banol,	Heritage	0.4			
Aerification - type	hollow tine- July & August.	Subdue, and Heritage	Consys	4			
	Graden - Sept. 1.	are rotated and sprayed	Terrazole	6			
		on a two weeks			NOTES/COMMENTS		
Verticutting	Lightly verticut every 3	schedule.			Overseeded with Poa trivialis and covered when temperatures dropped below 24 degrees. Areas of green that get the most splash from bunkers are healthier. No discernable layer underneath. Weekly topdressing would probably be better.		
	weeks or so.						
Dates of topdressing	Heavy after aerifications,						
	Lightly bi-weekly						
Other cultural practices	Rolling as needed						

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TABLE 1E.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
 IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
 AT BIRMINGHAM, AL (COUNTRY CLUB OF BIRMINGHAM) 1/
 1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
 TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	SPRING GREENUP	COLOR	COLOR	OVERSEEDING QUALITY		STIMPMETER READINGS 1999	POA	PERCENT	OVERSEED ESTABLISHMENT	
			SEPTEMBER 2000-01	OCTOBER 1999 & 2001	NOVEMBER 1999	DECEMBER 1999		TRIVIALIS DENSITY MAY 2001	ESTABLISHMENT 5 WEEKS 1998	OCTOBER 1998	NOVEMBER 1998
MINI-VERDE	6.9	5.1	5.8	4.5	7.3	8.7	105.0	6.0	61.7	4.7	3.3
TIFEAGLE	6.2	4.7	5.7	4.2	7.3	8.3	102.7	6.0	58.3	4.7	2.7
FLORADWARF	6.9	5.0	5.4	4.3	5.7	7.3	106.7	5.0	65.0	4.0	3.0
MS-SUPREME	5.8	5.3	4.8	4.0	7.3	8.3	107.3	6.3	71.7	4.0	2.7
CHAMPION	6.3	4.7	4.4	4.2	6.7	8.0	105.0	5.7	60.0	4.3	3.0
TIFDWARF	5.4	5.6	4.3	5.0	6.3	7.7	105.3	5.7	71.7	4.7	3.0
TIFGREEN	4.0	4.3	2.7	4.0	4.7	6.3	103.3	6.0	76.7	2.3	2.3
LSD VALUE	0.7	2.8	0.8	2.6	0.9	1.8	9.7	1.7	14.2	1.5	1.4
C.V. (%)	15.9	36.3	19.6	30.8	7.9	10.9	3.6	12.1	10.5	18.6	19.7

TABLE 1E.
(CONT'D)

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
 IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
 AT BIRMINGHAM, AL (COUNTRY CLUB OF BIRMINGHAM) 1/
 1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
 TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	QUALITY RATINGS											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	DEC	MEAN
MINI-VERDE	6.0	7.0	6.3	6.7	5.2	6.2	6.0	6.9	6.1	5.0	3.7	5.9
TIFEAGLE	6.0	6.0	6.7	7.0	5.1	6.1	5.6	6.3	6.1	5.1	2.7	5.7
FLORADWARF	5.7	6.3	6.3	7.0	5.7	5.8	5.9	5.9	5.8	4.1	2.7	5.6
MS-SUPREME	6.0	7.3	7.0	7.0	5.4	6.1	5.3	6.1	5.2	4.1	3.3	5.6
CHAMPION	5.7	6.0	7.0	6.7	5.1	5.9	5.6	5.8	5.4	4.7	2.7	5.5
TIFDWARF	6.0	5.7	6.0	7.0	5.8	5.8	5.2	5.6	5.3	4.2	3.7	5.4
TIFGREEN	5.3	3.7	4.7	5.0	3.9	4.7	3.4	3.6	3.4	4.0	4.0	4.0
LSD VALUE	0.8	0.9	1.3	1.0	1.8	0.6	0.6	0.7	0.8	1.3	1.5	0.3
C.V. (%)	6.3	9.0	10.8	7.8	28.3	13.2	15.4	16.4	20.5	23.2	21.7	8.4

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
 STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 2A. 1998 MANAGEMENT - ON-SITE BERMUDAGRASS TEST AT MOBILE, AL (COUNTRY CLUB OF MOBILE)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Planting date	18-Jun-98	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None	Preplant	13-13-13 19-25-13	1 lb. N per week 0.5 lb. N per month	None		
FACTORS OF PLAY		Winter 1998					
Date opened for play	20-Aug-98						
Date closed for play	not closed						
Type of spikes allowed	softspikes only						
Uses of green	putting, chipping, pitching	INSECTICIDES					
		Date(s)	Product	Rate (oz./M)			
MOWING							
Initial height	1/4"	FUNGICIDES					
Current height	5/32"	Date(s)	Product	Rate (oz./M)			
Frequency	7 days/week						
Type of mower	walking						
Rollers used					OTHER PRODUCTS		
Groomers used		Heritage	Subdue Maxx	preventative	Date(s)	Product	Rate (oz./M)
CULTIVATION		Koban	Daconil	preventative			
Aerification - dates	None	ProStar					
Aerification - type		LESCO Manicure					
Verticutting	bi-weekly						
Dates of topdressing	May-Sept.: every week Oct.-Apr.: every other week	NOTES/COMMENTS					
Other cultural practices	Rolled once per week	All varieties grew in quickly. The establishment cover slowed down spread by about a week.					

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TABLE 2C. 2000 MANAGEMENT - ON-SITE BERMUDAGRASS TEST AT MOBILE, AL (COUNTRY CLUB OF MOBILE)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Planting date	18-Jun-98	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None						
	1 lb. N/M, amend soil with Ca as needed. Topdress & roll until smooth surface was attained	June - October November - May		1 lb. N & 2 lbs. K 1/2 lb. N & 1 lb. K	None		
				75% slow release (Nutralene) Nitrogen Typical blend 12-2-24 Foliar nutrients as needed (<2 lbs./year)			
FACTORS OF PLAY		FUNGICIDES			INSECTICIDES		
Date opened for play	NA	Date(s)	Product	Rate (oz./M)	Date(s)	Product	Rate (oz./M)
Date closed for play	softspikes						
Type of spikes allowed	putting, chipping,	July-September Fall, Spring	Delta Guard for armyworms Banol, Heritage, Terrazole for Pythium		None		
Uses of green		Chipco, chlorothalonil for patch disease					
MOWING					OTHER PRODUCTS		
Initial height	0.155"				Date(s)	Product	Rate (oz./M)
Current height	0.140"						
Frequency	7 days/week						
Type of mower	walking						
Rollers used	weekly in June - October						
Groomers used							
CULTIVATION		NOTES/COMMENTS					
Aerification - dates	5/15 and 8/14	Lots of disease fall of 2000. Tifgreen almost gone - taken over by adjacent plots. High nematode populations on Floradwarf.					
Aerification - type	5/8" Hollow Tines						
Verticutting	Verticut lightly every other						
Dates of topdressing	Monday in June-Oct. & topdressed lightly on the opposite Mondays. Topdressing monthly in November to May.						
Other cultural practices							

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 2D. 2001 MANAGEMENT - ON-SITE BERMUDAGRASS TEST AT MOBILE, AL (COUNTRY CLUB OF MOBILE)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Planting date	18-Jun-98	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None						
	1 lb. N/M, amend soil with Ca as needed. Topdress & roll until smooth surface was attained		1 lb. Of N per month 1/2 lb. Of P per month 2 lbs. Of K per month		None		
			Spray minors and wetting agent monthly rates for fertilizer cut by 1/2 in Winter				
FACTORS OF PLAY							
Date opened for play	always open	FUNGICIDES			INSECTICIDES		
Date closed for play		Date(s)	Product	Rate (oz./M)	Date(s)	Product	Rate (oz./M)
Type of spikes allowed	softspikes						
Uses of green	putting, chipping,		Chipco top choice in June for mole crickets		None		
			Everything else as needed				
MOWING							
Initial height	0.250"						
Current height	0.135"						
Frequency	7 days/week						
Type of mower	Jacobsen 22" walkers				OTHER PRODUCTS		
Rollers used	No				Date(s)	Product	Rate (oz./M)
Groomers used	No						
CULTIVATION		NOTES/COMMENTS			every 2 weeks in Summer	Primo	2 oz./K
Aerification - dates	May and August	The green was not overseeded in Winter 2001-20. Some differences in cold tolerance and greenup were noted. Some varieties (Tifgreen and Floradwarf) are almost completely overtaken by surrounding varieties.					
Aerification - type	1/2" Hollow Tines						
Verticutting	Verticut as needed - about 6 times per growing season						
Dates of topdressing	Topdress every Monday lightly. Primo at 2 oz./M every 2 weeks in Summer.						
Other cultural practices	Brushing after topdressing						

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TABLE 2E.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
AT MOBILE, AL (COUNTRY CLUB OF MOBILE) 1/
1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	LEAF TEXTURE	SEEDLING VIGOR	FALL DENSITY 2000	DOLLAR SPOT 2000-01	PERCENT DOLLAR SPOT 2000	COUNTS OF NEMATODES IN 2000 (NUMBERS/100 CUBIC CM SOIL)				STIMPMETER READINGS FALL 1999
							ROOT-KNOT	RING	LANCE	SHEATH	
MINI-VERDE	7.9	9.0	5.3	7.8	3.6	17.0	72.5	5.0	0.0	5.0	114.3
CHAMPION	7.4	9.0	5.5	7.5	3.5	29.5	60.0	0.0	2.5	5.0	134.3
TIFEAGLE	7.3	9.0	5.8	7.8	3.9	14.5	55.0	35.0	0.0	0.0	121.3
MS-SUPREME	6.3	9.0	5.5	6.0	6.0	2.5	55.0	5.0	0.0	5.0	125.3
FLORADWARF	6.9	9.0	5.3	6.8	4.9	21.8	35.0	2.5	102.5	0.0	125.8
TIFDWARF	7.5	8.3	5.8	7.8	3.5	8.3	90.0	15.0	0.0	15.0	116.8
TIFGREEN	5.8	6.7	5.8	5.3	3.6	2.5	127.5	15.0	0.0	10.0	116.0
LSD VALUE	0.8	0.3	1.8	0.8	2.5	11.2	68.1	69.1	14.7	16.8	18.5
C.V. (%)	15.0	5.0	14.0	8.3	47.0	55.5	54.6	278.0	72.6	151.2	8.2

TABLE 2E.
(CONT'D)

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
AT MOBILE, AL (COUNTRY CLUB OF MOBILE) 1/
1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	QUALITY RATINGS										
	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	MEAN
MINI-VERDE	8.0	7.8	8.0	7.8	7.7	7.9	8.1	8.1	7.9	8.0	8.0
CHAMPION	8.0	7.8	7.9	7.5	7.6	7.9	7.8	7.6	7.8	7.8	7.7
TIFEAGLE	7.8	7.8	7.6	7.4	7.7	7.7	7.5	7.7	7.5	7.5	7.6
MS-SUPREME	7.3	7.7	7.3	6.6	6.6	7.0	6.5	7.3	7.5	8.0	7.3
FLORADWARF	8.0	7.5	7.7	6.4	6.6	7.3	6.8	6.9	7.1	8.0	7.2
TIFDWARF	7.0	7.5	7.3	6.8	6.8	7.2	7.4	7.4	7.1	6.8	7.1
TIFGREEN	6.5	7.3	7.3	6.5	4.8	5.0	5.2	5.6	5.8	6.5	6.1
LSD VALUE	0.5	0.7	0.7	0.7	1.1	0.9	0.8	0.6	0.6	0.6	0.4
C.V. (%)	4.8	7.9	9.6	12.5	20.1	16.7	15.4	13.7	12.4	5.8	9.3

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 3A. 1998 MANAGEMENT - ON-SITE BERMUDAGRASS TEST AT GREEN VALLEY, AZ (COUNTRY CLUB OF GREEN VALLEY)

ESTABLISHMENT		FERTILIZATION			HERBICIDES					
Planting date	July 1998	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)			
Problems during	Established from plugs only - 40 per plot	Summer 1998	21-7-14	3.5-3.75 lbs. N	None					
					INSECTICIDES					
FACTORS OF PLAY					Date(s)	Product	Rate (oz./M)			
Date opened for play	not yet open				None					
Date closed for play										
Type of spikes allowed										
Uses of green	putting				OTHER PRODUCTS					
MOWING					Date(s)	Product	Rate (oz./M)			
Initial height					August 1998	Ferromec	4			
Current height					Sept. 1998	Ferromec	4			
Frequency					October 1998	Ferromec	4			
Type of mower	walking									
Rollers used	smooth roller				NOTES/COMMENTS					
Groomers used					Irrigation system would not support stolon establishment. Plugs produced raised turf by late Fall 1998. In April 1998, renovated all plots via special core aeration and lowering turf via cup cutter and re-setting plugs. Following aggressive aeration and rolling, green will open for play June 15, 1999					
CULTIVATION								FUNGICIDES		
		Date(s)	Product	Rate (oz./M)						
Aerification - dates	None									
Aerification - type		None								
Verticutting										
Dates of topdressing	None									
Other cultural practices	None									

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 3B. 1999 MANAGEMENT - ON-SITE BERMUDAGRASS TEST AT GREEN VALLEY, AZ (COUNTRY CLUB OF GREEN VALLEY)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Planting date	July 1998	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	Established from plugs only - 40 per plot	April	15-15-15	2 lbs. N	None		
		May	21-7-14	1.5 lbs.			
		May	14-0-8	0.25 lbs.			
		June	33-0-0	0.8 lbs.			
		June	0-0-37	0.25 lbs.			
		July	15-5-8	1.25 lbs.			
FACTORS OF PLAY					INSECTICIDES		
Date opened for play	open year round	August	21-7-14	1 lbs.	Date(s)	Product	Rate (oz./M)
Date closed for play		September	34-0-0	0.5 lbs.			
Type of spikes allowed	soft spikes only				April	Crusade	1x label rate
Uses of green							
MOWING							
Initial height	5/32"				OTHER PRODUCTS		
Current height	5/32"						
Frequency	6X/week						
Type of mower	22" walker						
Rollers used							
Groomers used	Shallow wiehle (round)						
CULTIVATION		FUNGICIDES			Date(s)	Product	Rate (oz./M)
Aerification - dates	None	Date(s)	Product	Rate (oz./M)	May	Ferromec	4
Aerification - type					June	Ferromec	4
Verticutting		None			August	Ferromec	4
Dates of topdressing	6/5, 10/22				NOTES/COMMENTS		
Other cultural practices	Only to brush in sand. Rolled once in May				Not overseeded due to location/elevation site		

Product and company names mentioned herein may be trademarks and/or registered trademarks of their respective owners

TABLE 3C. 2000 MANAGEMENT - ON-SITE BERMUDAGRASS TEST AT GREEN VALLEY, AZ (COUNTRY CLUB OF GREEN VALLEY)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Planting date	July 1998	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	Established from plugs only - 40 per plot	May-September (bi-monthly)	Florentine liquid	0.25 lbs. N	Roundup applied when bermuda was dormant to control poa and stray bentgrass		
		once in June-Sep.	15-15-15 greens grade granular	1.25 lbs. N			
FACTORS OF PLAY							
Date opened for play	01-Jun	May-September (monthly)	Ferromec (Iron)	4 oz. product	INSECTICIDES		
Date closed for play	15-Dec				Date(s)	Product	Rate (oz./M)
Type of spikes allowed	soft				None		
Uses of green	putting practice						
MOWING							
Initial height	5/32"				OTHER PRODUCTS		
Current height	5/32"				Date(s)	Product	Rate (oz./M)
Frequency	6X/week				April-September	soil wetting agent	2
Type of mower	Walking and triplex						
Rollers used	Grooved rollers only						
Groomers used							
CULTIVATION		FUNGICIDES					
Aerification - dates	22-Jun	Date(s)	Product	Rate (oz./M)			
Aerification - type	1/2" hollow tines 2 passes @ 2x2 spacing	None			NOTES/COMMENTS		
Verticutting	Light vert. - 6/5, 7/18, 8/22						
Dates of topdressing	Sand - 6/22, 7/5, 7/18, 8/22						
Other cultural practices							

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TABLE 3D. 2001 MANAGEMENT - ON-SITE BERMUDAGRASS TEST AT GREEN VALLEY, AZ (COUNTRY CLUB OF GREEN VALLEY)

	<p>Florantine Slo- Release and ammonium nitrate</p> <p>3 oz. Ferromec/M</p> <p>and 4 oz. Ferromec</p>	<p>Roundup applied when bermuda was dormant in March to control poa annua.</p>
<p>Shallow wiehle (round)</p>		<p>Florantine Root enhancer applied six times year at 1x rate.</p>
<p>2 solid tine aerifications same as aerifications; plus lite verticutting twice in June, once in July and Aug.</p>		<p>NOTES/COMMENTS</p>

Product and company names mentioned herein are trademarks and/or registered trademarks of their respective owners

TABLE 3E.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
 IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
 AT GREEN VALLEY, AZ (COUNTRY CLUB OF GREEN VALLEY) 1/
 1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
 TURFGRASS STIMPMETER READINGS MEASURED IN INCHES
 THATCH MEASUREMENTS IN MILLIMETERS

NAME	DENSITY RATINGS			PERCENT LIVING COVER			FROST TOLERANCE	THATCH 2000-01	FALL COLOR RATINGS			STIMPMETER READINGS			PERCENT ESTABLISHMENT	
	SPRING	SUMMER	FALL	SPRING	SUMMER	FALL	2001		SEP 2000-01	OCT 2000-01	NOV 2001	SPRING 2001	SUMMER 1999-01	FALL 1999-01	SUMMER	FALL
TIFEAGLE	6.9	7.4	7.9	88.2	90.5	95.0	8.0	24.7	6.3	6.7	5.0	108.3	97.0	98.9	50.0	83.3
TIFGREEN	5.8	6.3	6.8	72.5	78.8	76.2	7.3	19.5	7.7	7.0	5.3	100.0	99.3	102.1	53.3	86.0
TIFDWARF	7.3	7.3	7.8	68.3	80.8	93.7	7.0	21.2	5.0	5.3	5.3	110.0	99.8	103.9	55.0	86.0
MINI-VERDE	7.1	7.2	7.9	80.8	87.3	91.2	7.0	24.7	6.2	6.0	5.0	116.7	101.3	102.6	40.0	76.0
MS-SUPREME	6.6	6.5	7.5	77.5	85.0	91.5	7.3	19.2	5.5	5.5	3.7	109.7	95.8	96.9	43.3	80.3
FLORADWARF	5.6	6.0	6.5	80.8	90.8	76.2	8.0	14.3	6.0	5.0	6.0	97.0	93.2	99.1	75.0	94.7
CHAMPION	6.2	6.7	7.7	72.3	79.0	83.7	3.3	21.2	5.0	4.5	2.3	126.7	109.2	112.7	43.3	81.0
LSD VALUE	1.0	1.4	0.8	22.4	21.2	10.8	2.3	3.9	1.8	1.8	1.2	7.6	21.1	21.5	8.3	5.8
C.V. (%)	15.6	20.4	12.4	18.1	14.7	10.4	17.9	16.3	22.6	23.7	14.4	4.1	15.2	15.0	9.6	3.9

TABLE 3E.
(CONT'D)

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
 IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
 AT GREEN VALLEY, AZ (COUNTRY CLUB OF GREEN VALLEY) 1/
 1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
 TURFGRASS STIMPMETER READINGS MEASURED IN INCHES
 THATCH MEASUREMENTS IN MILLIMETERS

NAME	GENETIC COLOR	SPRING GREENUP	LEAF TEXTURE	SEEDLING VIGOR	QUALITY RATINGS								
					APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	MEAN
TIFEAGLE	7.1	6.3	7.7	6.3	4.8	6.0	6.9	7.0	7.6	6.8	6.8	6.7	6.8
TIFGREEN	7.2	6.7	6.5	6.3	4.5	5.1	6.1	5.9	7.2	7.8	7.3	6.8	6.6
TIFDWARF	6.7	7.0	7.5	6.7	4.2	6.8	7.3	7.6	6.7	5.3	6.0	6.0	6.4
MINI-VERDE	7.0	5.9	8.2	5.0	3.8	5.1	6.4	6.4	7.9	6.2	6.3	5.4	6.1
MS-SUPREME	6.4	6.6	7.5	5.3	4.5	5.3	6.2	5.9	7.0	6.2	5.7	5.9	6.1
FLORADWARF	5.4	5.4	5.6	8.7	6.2	4.9	5.2	5.3	4.8	5.9	6.3	7.0	5.8
CHAMPION	6.3	5.0	7.8	5.7	3.2	4.7	5.4	5.6	6.7	5.6	5.2	4.1	5.4
LSD VALUE	0.8	1.6	0.5	0.9	1.2	1.1	1.3	1.2	0.9	1.7	1.2	1.1	0.7
C.V. (%)	14.6	23.4	8.6	8.9	22.1	21.0	19.9	19.8	15.1	24.7	21.4	19.5	13.1

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
 STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 4E.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
 IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
 AT MURRIETA, CA (SCGA MEMBERS CLUB) 1/
 1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
 TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	LEAF TEXTURE	PERCENT COVER SPRING 2000	PERCENT ESTABLISHMENT		STIMPMETER READINGS		QUALITY RATINGS							MEAN
				3 WEEKS	6 WEEKS	SUMMER 2000	FALL 1999-01	APR	MAY	JUN	JUL	AUG	SEP	OCT	
MS-SUPREME	7.8	7.2	81.7	7.3	7.7	132.3	105.7	8.0	8.0	7.0	8.0	7.1	7.6	8.0	7.5
MINI-VERDE	7.7	7.2	68.3	5.0	6.0	124.7	101.8	7.0	8.0	6.5	7.8	7.2	7.4	7.8	7.3
CHAMPION	7.6	7.2	60.0	4.7	6.3	123.3	102.0	7.0	8.0	6.3	7.8	6.9	7.3	7.2	7.1
TIFEAGLE	7.6	6.8	75.0	4.7	6.0	129.3	108.3	7.0	7.3	6.5	7.7	6.7	7.0	7.3	6.9
FLORADWARF	6.4	6.8	63.3	3.7	6.3	126.0	107.4	6.0	8.0	6.5	7.5	6.4	6.6	6.5	6.5
TIFGREEN	6.3	5.9	53.3	7.3	8.7	122.7	103.2	6.3	6.0	6.0	6.8	6.0	6.6	6.8	6.4
TIFDWARF	6.6	5.9	46.7	5.7	7.0	129.0	104.8	6.0	6.7	6.0	6.5	6.0	6.4	6.2	6.2
LSD VALUE	0.5	0.5	16.1	1.3	1.6	14.9	5.3	0.4	0.5	0.9	0.6	0.9	0.6	0.5	0.4
C.V. (%)	7.5	7.8	13.7	14.0	12.4	4.9	4.6	3.2	4.0	9.3	6.8	12.6	8.9	5.9	6.7

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
 STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 5E.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
 IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
 AT HOBE SOUND, FL (THE JUPITER ISLAND CLUB) 1/
 1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
 TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	FALL COLOR	FALL COLOR	FALL COLOR	STOLON COUNTS	SHOOT 3/ COUNTS	STIMPMETER READINGS				PERCENT ESTABLISHMENT RATINGS				
	SEPTEMBER 2000-01	NOVEMBER 2001	DECEMBER 2000-01			2000	2001	SPRING 1999	WINTER 1998-99	2000	2001	JULY 14	AUG.1	AUG.14
MINI-VERDE	8.2	8.0	8.3	318.7	337.0	126.0	91.0	116.3	107.3	31.7	60.0	85.0	96.3	99
TIFEAGLE	8.2	8.0	8.2	320.0	401.0	130.0	89.3	113.7	112.7	40.0	65.0	85.0	94.3	99
CHAMPION	7.2	7.7	8.2	402.7	434.0	131.3	94.7	112.7	113.7	40.0	63.3	81.7	97.0	99
FLORADWARF	7.5	7.7	8.2	303.7	382.0	143.3	104.7	112.3	120.3	31.7	55.0	86.7	99.0	99
TIFDWARF	8.7	8.3	7.7	275.3	258.0	124.7	92.0	118.3	113.7	25.0	53.3	80.0	96.0	99
MS-SUPREME	7.0	6.3	7.4	371.0	366.7	123.3	89.7	109.3	113.7	43.3	68.3	91.3	98.3	99
TIFGREEN	6.8	6.0	5.7	244.3	292.7	124.7	81.7	117.3	117.0	38.3	85.0	97.7	99.0	99
LSD VALUE	0.9	0.8	1.2	113.7	103.9	11.7	16.8	18.0	6.7	18.2	21.2	8.2	4.6	0
C.V. (%)	10.0	6.0	16.8	17.4	15.2	4.7	8.6	6.2	3.0	23.1	16.3	5.1	2.2	0

TABLE 5E.
(CONT'D)

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
 IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
 AT HOBE SOUND, FL (THE JUPITER ISLAND CLUB) 1/
 1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
 TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	LEAF TEXTURE	DENSITY SPRING	DENSITY FALL	WINTER COLOR	THATCH	QUALITY RATINGS												
						MEASUREMENT 1999-01	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
MINI-VERDE	8.6	8.4	7.7	8.5	8.0	5.7	8.5	8.2	8.8	7.0	7.1	7.0	8.3	9.0	8.5	7.0	8.3	8.2	8.1
TIFEAGLE	7.9	7.7	7.7	7.9	7.7	5.1	8.5	8.2	8.4	7.2	7.3	6.7	8.0	8.3	8.3	7.0	7.7	8.2	7.9
CHAMPION	8.2	8.0	7.7	7.6	7.7	5.4	8.5	8.2	8.2	7.3	6.9	6.7	8.3	7.3	7.7	6.0	7.6	8.3	7.6
FLORADWARF	7.6	7.5	7.7	7.2	7.0	5.3	7.3	7.2	7.7	6.3	6.8	6.7	7.3	8.0	8.1	7.7	7.3	7.5	7.4
TIFDWARF	7.5	6.8	7.3	7.2	5.3	5.2	6.5	6.8	7.7	6.8	7.3	8.0	8.0	9.0	8.7	6.3	7.9	6.9	7.4
MS-SUPREME	7.0	7.0	7.3	5.9	5.7	5.7	7.2	7.5	7.6	7.0	7.7	7.7	7.7	7.0	7.4	5.3	6.6	7.0	7.1
TIFGREEN	5.7	5.2	5.3	4.9	3.3	5.3	4.7	5.3	6.3	7.2	7.2	8.0	7.3	7.7	6.2	3.0	6.1	4.6	5.7
LSD VALUE	0.8	0.6	1.0	0.8	0.8	7.3	0.9	1.0	0.7	1.7	1.2	1.0	1.7	0.7	0.7	1.7	1.1	0.7	0.5
C.V. (%)	14.6	11.5	8.0	14.5	7.4	76.8	12.0	12.0	10.0	13.6	11.9	7.1	8.9	5.0	11.8	15.7	15.0	13.1	9.4

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
 STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

3/ A TWO INCH DIAMETER CORE WAS TAKEN FROM EACH PLOT AND COUNTED ALL SHOOTS WITHIN THAT AREA.

TABLE 6B. MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
 IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
 AT ST. CHARLES, MO (THE MISSOURI BLUFFS G. C.) 1/
 1998 DATA 3/

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/

NAME	GENETIC COLOR	LEAF TEXTURE	PERCENT ESTABLISHMENT RATINGS		QUALITY RATINGS			
			SUMMER	FALL	AUG	SEP	OCT	MEAN
TIFEAGLE	6.0	6.0	46.7	91.7	4.3	5.7	3.0	4.3
TIFDWARF	7.0	6.0	33.3	91.7	3.7	5.3	3.7	4.2
TIFGREEN	5.7	5.0	26.7	96.3	4.0	5.3	3.3	4.2
CHAMPION	5.7	6.3	50.0	99.0	4.7	5.3	2.3	4.1
MINI-VERDE	6.0	6.7	36.7	99.0	4.7	4.7	2.3	3.9
MS-SUPREME	6.0	6.3	33.3	98.3	4.3	4.7	2.3	3.8
FLORALDWARF	7.0	6.0	30.0	86.7	3.0	4.3	2.0	3.1
LSD VALUE	0.6	0.7	8.2	3.8	1.0	-	1.0	0.9
C.V. (%)	5.2	6.6	12.9	2.3	12.7	18.8	18.6	11.0

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN. STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

3/ DUE TO WINTER INJURY, THE TEST WAS DISCONTINUED IN SPRING 1999.

TABLE 7E.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
 IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
 AT DALLAS, TX (BENT TREE COUNTRY CLUB) 1/
 1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/

NAME	GENETIC COLOR	SPRING GREENUP	LEAF TEXTURE	DENSITY SPRING	DENSITY SUMMER	DENSITY FALL	WINTER COLOR 1998	FALL COLOR	FALL COLOR	FALL COLOR	DORMANCY OCTOBER 1999	PERCENT ESTABLISHMENT		
								OCTOBER 1999	NOVEMBER 1999,2001	DECEMBER 1999		1 WEEK	5 WEEKS	8 WEEKS
MINI-VERDE	7.3	6.9	5.3	5.9	6.9	7.7	8.0	3.3	5.5	3.0	5.7	66.7	40.0	53.3
TIFEAGLE	7.0	6.6	4.8	5.8	6.4	7.7	7.7	2.3	5.2	2.3	5.0	88.3	53.3	36.7
CHAMPION	6.9	6.2	5.0	5.6	6.2	8.0	7.7	2.3	5.5	2.3	5.3	91.7	33.3	23.3
FLORADWARF	6.8	5.2	4.6	5.1	5.4	7.3	7.3	2.0	4.3	2.0	6.0	66.7	58.3	63.3
MS-SUPREME	6.3	5.8	4.6	5.0	6.2	7.7	7.0	1.3	5.0	1.7	5.7	73.3	53.3	80.0
TIFDWARF	6.9	5.1	4.8	4.8	5.1	6.7	5.3	4.3	4.7	4.3	7.3	76.7	40.0	26.7
TIFGREEN	5.9	4.0	5.4	4.2	4.6	6.3	3.7	3.7	5.3	3.0	7.7	85.0	70.0	80.0
LSD VALUE	1.3	2.1	3.9	3.4	1.2	0.6	1.0	1.7	1.8	2.1	2.4	22.0	19.4	19.2
C.V. (%)	18.1	33.7	46.4	42.4	20.3	5.0	9.4	31.9	20.8	37.5	18.7	13.6	20.6	21.7

TABLE 7E.
(CONT'D)

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
 IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
 AT DALLAS, TX (BENT TREE COUNTRY CLUB) 1/
 1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/

NAME	QUALITY RATINGS													MEAN
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
MINI-VERDE	4.7	6.9	6.8	5.7	6.3	6.2	5.7	7.2	7.2	6.3	7.2	5.3	6.6	
TIFEAGLE	4.6	6.3	6.7	5.1	5.7	5.7	5.3	6.6	5.9	6.4	6.9	5.2	6.2	
CHAMPION	4.1	6.1	6.1	4.9	5.9	5.7	4.9	6.2	5.4	5.8	6.4	5.0	5.8	
FLORADWARF	4.9	5.7	5.1	4.2	5.3	4.8	4.7	5.6	5.9	5.8	6.1	5.1	5.7	
MS-SUPREME	4.6	5.6	5.4	4.4	6.2	5.4	5.2	6.1	6.1	5.3	5.9	4.8	5.7	
TIFDWARF	5.2	5.6	5.1	4.3	4.6	4.1	4.9	6.1	5.2	5.3	5.4	5.3	5.4	
TIFGREEN	4.4	4.8	4.0	4.3	4.1	3.6	5.0	5.6	4.6	4.8	4.9	4.6	4.8	
LSD VALUE	1.3	1.7	1.8	3.2	2.0	1.6	2.1	1.9	2.2	2.3	0.8	2.3	1.0	
C.V. (%)	21.1	24.8	31.1	43.9	32.0	30.5	26.9	23.7	31.5	33.2	14.7	28.2	20.0	

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
 STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.

TABLE 8D.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
AT HOUSTON, TX (LAKESIDE COUNTRY CLUB) 1/
1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	GENETIC COLOR	SPRING GREENUP	LEAF TEXTURE	SEEDLING VIGOR	PERCENT LIVING COVER		STIMPMETER READINGS		
					SPRING 2001	SUMMER 2001	SPRING 1999-00	SUMMER 1999-01	FALL 1999-00
MINI-VERDE	5.7	5.3	6.3	7.7	76.7	91.7	112.0	106.2	117.0
CHAMPION	5.0	3.7	6.3	6.0	81.7	91.7	107.7	108.9	109.0
MS-SUPREME	5.3	4.3	6.3	7.3	81.7	86.7	107.3	106.7	108.5
FLORADWARF	5.3	4.0	6.3	6.3	73.3	91.7	104.3	105.7	106.0
TIFEAGLE	4.9	4.0	6.7	6.3	56.7	73.3	101.7	107.6	105.5
TIFDWARF	5.1	5.7	5.0	7.0	41.7	78.3	118.7	116.1	122.8
TIFGREEN	2.5	3.0	1.7	7.3	58.3	61.7	106.2	106.0	106.3
LSD VALUE	1.2	3.6	0.8	0.8	23.3	13.3	9.9	13.9	8.5
C.V. (%)	31.2	35.3	8.7	6.6	18.3	9.1	7.0	9.4	6.5

TABLE 8D.
(CONT'D)

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BERMUDAGRASS CULTIVARS
IN THE 1998 USGA/GCSAA/NTEP ON-SITE BERMUDAGRASS TEST
AT HOUSTON, TX (LAKESIDE COUNTRY CLUB) 1/
1998-2001 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST 2/
TURFGRASS STIMPMETER READINGS MEASURED IN INCHES

NAME	QUALITY RATINGS												MEAN
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
MINI-VERDE	5.7	6.8	6.2	5.3	5.9	6.4	6.2	6.1	5.9	5.5	5.1	5.0	5.8
CHAMPION	5.4	6.0	6.1	5.4	5.8	6.0	5.9	5.8	5.8	5.4	4.6	4.5	5.5
MS-SUPREME	5.7	6.3	6.8	5.6	5.9	6.0	5.8	5.3	5.5	5.1	4.6	4.5	5.4
FLORADWARF	5.6	6.1	5.4	4.7	4.9	6.0	5.4	4.8	5.2	5.1	4.3	4.5	5.1
TIFEAGLE	5.8	6.1	5.6	4.6	4.6	5.3	5.8	5.3	5.3	5.3	4.2	4.5	5.1
TIFDWARF	5.6	6.2	5.8	4.3	4.8	5.1	5.2	4.4	4.6	4.8	4.2	4.8	4.7
TIFGREEN	4.6	4.7	4.1	3.4	3.9	2.2	2.1	1.7	2.1	1.6	2.4	3.7	2.6
LSD VALUE	1.7	1.0	1.1	1.3	1.6	1.0	0.7	0.9	0.9	0.6	0.5	0.5	0.6
C.V. (%)	21.9	16.4	19.6	27.0	29.1	22.0	15.8	25.4	23.5	17.1	13.6	9.0	16.5

1/ TO DETERMINE STATISTICAL DIFFERENCES AMONG ENTRIES, SUBTRACT ONE ENTRY'S MEAN FROM ANOTHER ENTRY'S MEAN.
STATISTICAL DIFFERENCES OCCUR WHEN THIS VALUE IS LARGER THAN THE CORRESPONDING LSD VALUE (LSD 0.05).

2/ C.V. (COEFFICIENT OF VARIATION) INDICATES THE PERCENT VARIATION OF THE MEAN IN EACH COLUMN.