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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:

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

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. Clark Throssell, 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	Mike Vogt	Dr. John Dum, 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 BENTGRASS TEST

Entries and Sponsors

Entry No.	Name	Sponsor
1	L-93	AgriBioTech, Inc.
2	Putter	Jacklin Seed Company
3	Cato	Pickseed West, Inc.
4	Crenshaw	Lofts Seed, Inc.
5	Grand Prix (LCB-103)	LESCO, Inc.
6	Penncross	Standard entry
7	Backspin	Turf Merchants, Inc.
8	Trueline	Turf Merchants, Inc.
9	Providence	Seed Research of Oregon
10	SR 1020	Seed Research of Oregon
11	SR 1119	Seed Research of Oregon
12	Viper	International Seeds, Inc.
13	Century	Burlingham Seeds, Inc.
14	Imperial	Burlingham Seeds, Inc.
15	Penn A-1	Tee-2-Green Corp.
16	Penn A-4	Tee-2-Green Corp.
17	Penn G-6	Tee-2-Green Corp.
18	Penn G-1	Tee-2-Green Corp.

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

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Seeding date	16-Sep-97	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None	every week, Feb. - Nov.		0.06 - 0.125 lb. of N & K20, 0.03 lb. of P205	16-Mar-98 26-May-98	Pre-San Pre-San	2 lbs. product/M 2 lbs. product/M
FACTORS OF PLAY		February	Nature Safe 8-3-5	0.5 lb. N			
Date opened for play		March	Nature Safe 8-3-5	0.5 lb. N			
Date closed for play	not closed	April	Nature Safe 8-3-5	0.5 lb. N			
Type of spikes allowed	softspikes	May	Nature Safe 8-3-5	0.5 lb. N			
Uses of green	chipping	September	Nature Safe 8-3-5	0.5 lb. N			
		October	Nature Safe 8-3-5	0.5 lb. N			
		weekly as needed	Multigreen/Maxigreen	2-4 oz./M			
MOWING		weekly as needed	Lesco Micromix & Iron	2-4 oz./M			
					INSECTICIDES		
Initial height	0.275"				Date(s)	Product	Rate (oz./M)
Current height	0.15 -0.16"						
	0.14" for short periods						
Frequency	6 days/week				as needed for cutworms	Talstar	
Type of mower	walking						
Rollers used							
Groomers used	Toro GM800 set .005" below bedknife used daily except mid-June through mid-Sept.				OTHER PRODUCTS		
		FUNGICIDES					
CULTIVATION		Date(s)	Product	Rate (oz./M)	Date(s)	Product	Rate (oz./M)
Aerfication	10/13/98 using 1/2" coring times	every 2-3 wks, Feb. - mid-Dec.	Alternate Banol, Alliette,	labeled preventative rates	weekly as needed	Astron	1
Aerfication	high pressure water injection		Heritage and Subdue		weekly as needed	Perkup	3
	every 2 wks, Feb. - Nov.		with either Mancozeb		6-May-98	Primo	8 oz./Acre
Verticutting	lightly 2 times in spring 1998		or Daconil		10-Jun-98	Primo	8 oz./Acre
Dates of topdressing	lightly every 2 wks during growing season. Heavier after aerification.				NOTES/COMMENTS		
Other cultural practices	Rolled after coring. Rolled three times in spring 1998						

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TABLE B. 1998 MANAGEMENT - ON-SITE BENTGRASS TEST AT GREEN VALLEY, AZ (COUNTRY CLUB OF GREEN VALLEY)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Seeding date	October 1997	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	one plot washed out-replanted	Annually		3.0-3.5 lbs. N/year			
		Annually		1.0-1.5 lbs. P/year			
FACTORS OF PLAY		Annually		1.0-1.5 lbs. K/year			
Date opened for play	November 1997			no more than 1/8			
Date closed for play	not closed			lb. N/M June-Sept.			
Type of spikes allowed	softspikes						
Uses of green	putting						
MOWING		INSECTICIDES					
Initial height	3/16"				Date(s)	Product	Rate (oz./M)
Current height	5/32"						
Frequency	6 days/week				May	Dursban	
Type of mower	walking						
Rollers used	smooth						
Groomers used	None						
CULTIVATION		FUNGICIDES			OTHER PRODUCTS		
Aerification - dates	3/10, 4/16	Date(s)	Product	Rate (oz./M)	Date(s)	Product	Rate (oz./M)
Aerification - type							
Verticutting	3/7, 4/13, 5/6, 11/10	July	Heritage		Eight times/year	Ferromec	3
	light verticut - one direction						
Dates of topdressing	3/10, 4/16, 5/6, 11/10						
Other cultural practices							
NOTES/COMMENTS							

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TABLE 3C. 1998 MANAGEMENT - ON-SITE BENTGRASS TEST AT BURLINGAME, CA (CRYSTAL SPRINGS GOLF COURSE)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Seeding date	25-Sep-97	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None						
		17-Apr-98	Best 15-15-15	0.5 lb. N	None		
		24-May-98	Best 15-15-15	0.5 lb. N			
FACTORS OF PLAY		21-Jun-98	Best 15-15-15	0.5 lb. N			
		23-Jul-98	Milorganite	0.5 lb. N			
Date opened for play	1-Apr-98	27-Aug-98	Milorganite	0.5 lb. N			
Date closed for play		21-Sep-98	Best 15-15-15	0.5 lb. N			
Type of spikes allowed	Metal, softspikes	6-Nov-98	Seasource 16-4-8	0.75 lb. N			
Uses of green	putting, chipping	17-Nov-98	Seasource 16-4-8	0.5 lb. N			
		30-Dec-98	0-0-50	0.9 lb. K			
MOWING					INSECTICIDES		
Initial height	1/4"						
Current height	5/32"				Date(s)	Product	Rate (oz./M)
Frequency	daily during season						
Type of mower	walking				None		
Rollers used							
Groomers used	always used	FUNGICIDES					
CULTIVATION		Date(s)	Product	Rate (oz./M)			
Aerification - dates	7-Aug-98	17-Mar-98	Fore		OTHER PRODUCTS		
Aerification - type	3/8" solid tines	12-May-98	Scotts Fungicide X				
Verticutting	None				Date(s)	Product	Rate (oz./M)
Dates of topdressing	7-Aug-98						
Other cultural practices	rolled on 3/26, 6/24, 7/25, 9/12				None		
					NOTES/COMMENTS		

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TABLE D. 1998 MANAGEMENT - ON-SITE BENTGRASS TEST AT MURRIETA, CA (SCGA MEMBERS CLUB)

ESTABLISHMENT		FUNGICIDES			OTHER PRODUCTS		
Seeding date	Sept. 1997	Date(s)	Product	Rate (oz./M)	Date(s)	Product	Rate (oz./M)
Problems during	None	16-Jan-98	Chipco 26019	4	16-Jan-98	1-0-0 (w/8% calcium)	34
		19-Feb-98	Daconil 2787	4	16-Jan-98	Deep Green chelated iron	34
FACTORS OF PLAY		19-Feb-98	Chipco GT	4	23-Jan-98	Deep Green chelated iron	34
		24-Mar-98	ProStar	2	23-Jan-98	1-0-0 (w/8% calcium)	34
Date opened for play	April 1998	27-Mar-98	Subdue	2	29-Jan-98	Deep Green chelated iron	34
Date closed for play	not closed	15-Jun-98	Fore	7	29-Jan-98	1-0-0 (w/8% calcium)	34
Type of spikes allowed	metal,softspikes	19-Jun-98	Heritage	0.4	26-Feb-98	Deep Green FeSO4	1.6 lbs./M
Uses of green	putting, chipping, target from bunker	01-Jul-98	Daconil	4	06-Mar-98	Deep Green FeSO4	1.6 lbs./M
		14-Jul-98	Alliette	4	06-Mar-98	1-0-0 (w/8% calcium)	34
MOWING		11-Aug-98	Fore	8	13-Mar-98	Deep Green FeSO4	1.1 lbs./M
		21-Aug-98	Clearys 3336	8	24-Mar-98	Eco-Mag	21
Initial height	0.25"	02-Sep-98	Subdue	2	24-Mar-98	Deep Green FeSO4	1.4 lbs./M
Current height	0.13"	02-Sep-98	Fore	8	02-Apr-98	Eco-Mag	34
Frequency	7 days/week	14-Sep-98	Daconil 2787	5	02-Apr-98	Deep Green FeSO4	1.3 lbs./M
Type of mower	walking, triplex	24-Oct-98	Subdue	2	07-Apr-98	Roots	34
Rollers used	on triplex only	24-Oct-98	Fore	8	20-Apr-98	Eco-Mag	34
Groomers used	on triplex only	25-Nov-98	Fore	8	20-Apr-98	Deep Green FeSO4	1.3 lbs./M
		22-Dec-98	Chipco 26 GT	6	06-May-98	Turf Partners FeSO4	1.6 lbs./M
CULTIVATION					26-May-98	Turf Partners FeSO4	1.6 lbs./M
					01-Jun-98	Deep Green FeSO4	0.86 lbs./M
Aerification - dates	03-Sep-98				05-Jun-98	Roots 1-2-3	34
Aerification - type	solid	HERBICIDES			10-Jun-98	Turf Partners Eco-Mag	34
Verticutting	first week of April, May, June, Sept., Oct.	Date(s)	Product	Rate (oz./M)	10-Jun-98	Deep Green FeSO4	1.6 lb./M
Dates of topdressing	first week of April, May, June, Sept., Oct.	None			15-Jun-98	Deep Green FeSO4	1.3 lb./M
Other cultural practices	brushed green monthly rolled green monthly with Jacobsen rollers	INSECTICIDES			19-Jun-98	Roots 1-2-3	34
		Date(s)	Product	Rate (oz./M)	01-Jul-98	Turf Partners Eco-Mag	34
					04-Aug-98	Turf Partners Eco-Mag	34
					25-Aug-98	Turf Partners Eco-Mag	34
					14-Sep-98	Roots	17
					22-Sep-98	Roots	34
					08-Oct-98	Roots	17
					06-Nov-98	Turf Partners Eco-Mag	34
		10-Aug-98	Merit	1.6	06-Nov-98	Thio-cal (6% calcium)	68
					17-Nov-98	Crown Tech FeSO4	1.6 lbs./M
					17-Nov-98	Lesco Micro-Mix	34
		NOTES/COMMENTS			25-Nov-98	Crown Tech FeSO4	1.3 lbs./M
					08-Dec-98	Crown Tech FeSO4	1.3 lbs./M
					08-Dec-98	Turf Partners Eco-Mag	34
					22-Dec-98	Crown Tech FeSO4	1.3 lbs./M

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TABLE D. (CONT'D)

1998 MANAGEMENT - ON-SITE BENTGRASS TEST AT MURRIETA, CA (SCGA MEMBERS CLUB)

FERTILIZATION			FERTILIZATION			FERTILIZATION		
Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (lbs./M)
16-Jan-98	Turf Partners 7-0-0	0.02 lbs. N	27-Apr-98	Turf Partners 7-0-0	0.02 lbs. N	17-Aug-98	Nutriculture 28-8-18	0.08 lbs. N
16-Jan-98	Turf Partners 2-20-0	0.06 lbs. P	27-Apr-98	Turf Partners 0-0-50	0.15 lbs. N	25-Aug-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N
16-Jan-98	Turf Partners 1-0-23	0.07 lbs. K	04-May-98	Best 5-16-22	0.41 lbs. N	25-Aug-98	Nutriculture 28-8-18	0.08 lbs. N
23-Jan-98	Turf Partners 2-20-0	0.06 lbs. P	06-May-98	Turf Partners 24-0-0	0.07 lbs. N	02-Sep-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N
23-Jan-98	Turf Partners 1-0-23	0.07 lbs. K	06-May-98	Nutriculture 20-20-20	0.03 lbs. N	09-Sep-98	Peters 20-10-20	0.06 lbs. N
29-Jan-98	Turf Partners 7-0-0	0.02 lbs. N	06-May-98	Turf Partners 7-0-0	0.02 lbs. N	14-Sep-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N
29-Jan-98	Turf Partners 1-0-23	0.07 lbs. K	06-May-98	Turf Partners 1-0-23	0.03 lbs. K	14-Sep-98	Peters 20-10-20	0.06 lbs. N
29-Jan-98	Turf Partners 2-20-0	0.06 lbs. P	26-May-98	Nutriculture 28-8-18	0.08 lbs. N	14-Sep-98	Nutriculture 28-8-18	0.08 lbs. N
30-Jan-98	Best 10-4-16	0.58 lbs. N	26-May-98	K-Power 14-0-46	0.04 lbs. N	22-Sep-98	Peters 20-10-20	0.06 lbs. N
30-Jan-98	Eco-Turf 0-0-50	2.9 lbs. K	01-Jun-98	Nutriculture 28-8-18	0.08 lbs. N	22-Sep-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N
16-Feb-98	Best 10-4-16	0.41 lbs. N	01-Jun-98	Turf Partners 15-0-0	0.03 lbs. N	23-Sep-98	Best 10-4-16	0.41 lbs. N
19-Feb-98	Turf Partners 7-0-0	0.02 lbs. N	05-Jun-98	K-Power 14-0-46	0.04 lbs. N	30-Sep-98	Best 10-4-16	0.41 lbs. N
19-Feb-98	Turf Partners 1-0-23	0.07 lbs. K	05-Jun-98	Turf Partners 24-0-0	0.07 lbs. N	08-Oct-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N
19-Feb-98	Turf Partners 2-20-0	0.06 lbs. P	09-Jun-98	Par-Ex 25-4-8	0.55 lbs. N	08-Oct-98	K-Power 14-0-46	0.04 lbs. N
26-Feb-98	Turf Partners 7-0-0	0.02 lbs. N	10-Jun-98	Turf Partners 1-0-23	0.07 lbs. K	08-Oct-98	Peters 20-10-20	0.06 lbs. N
26-Feb-98	Nutriculture 13-0-44	0.04 lbs. N	10-Jun-98	Turf Partners 24-0-0	0.07 lbs. N	16-Oct-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N
26-Feb-98	Nutriculture 20-20-20	0.06 lbs. N	10-Jun-98	Nutriculture 28-8-18	0.08 lbs. N	16-Oct-98	Peters 20-10-20	0.06 lbs. N
02-Mar-98	Best 10-4-16	0.41 lbs. N	15-Jun-98	Turf Partners 24-0-0	0.07 lbs. N	16-Oct-98	Turf Partners 3-0-14	0.02 lbs. K
05-Mar-98	Best 11-55-0	0.33 lbs. N	15-Jun-98	Turf Partners 1-0-23	0.07 lbs. K	24-Oct-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N
06-Mar-98	Nutriculture 13-0-44	0.04 lbs. N	16-Jun-98	Best 25-4-8	0.73 lbs. N	24-Oct-98	Peters 20-20-20	0.06 lbs. N
06-Mar-98	Nutriculture 20-20-20	0.06 lbs. N	01-Jul-98	Turf Partners 1-0-23	0.07 lbs. K	30-Oct-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N
13-Mar-98	K-Power 14-0-46	0.17 lbs. N	01-Jul-98	Nutriculture 28-8-18	0.08 lbs. N	30-Oct-98	Peters 20-10-20	0.06 lbs. N
24-Mar-98	Turf Partners 1-0-23	0.07 lbs. K	01-Jul-98	Turf Partners 24-0-0	0.07 lbs. N	31-Oct-98	Best 10-4-16	0.58 lbs. N
24-Mar-98	Turf Partners 24-0-0	0.07 lbs. N	03-Jul-98	Turf Partners 1-0-23	0.07 lbs. K	06-Nov-98	Turf Partners 1-0-23	0.07 lbs. K
27-Mar-98	Turf Partners 7-0-0	0.02 lbs. N	03-Jul-98	Nutriculture 28-8-18	0.08 lbs. N	06-Nov-98	Turf Partners 7-0-0	0.02 lbs. N
02-Apr-98	Turf Partners 1-0-23	0.07 lbs. K	13-Jul-98	Turf Partners 1-0-23	0.28 lbs. N	13-Nov-98	Turf Partners 1-0-23	0.07 lbs. K
02-Apr-98	Turf Partners 24-0-0	0.07 lbs. N	13-Jul-98	Nutriculture 28-8-18	0.08 lbs. N	13-Nov-98	Turf Partners 7-0-0	0.02 lbs. N
02-Apr-98	Nutriculture 28-8-18	0.08 lbs. N	14-Jul-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N	13-Nov-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N
03-Apr-98	Pursell 0-0-41	0.81 lbs. K	14-Jul-98	Nutriculture 28-8-18	0.08 lbs. N	13-Nov-98	Nutriculture 28-8-18	0.08 lbs. N
03-Apr-98	Best 10-4-16	0.41 lbs. N	16-Jul-98	Best 5-16-22	0.41 lbs. N	17-Nov-98	Turf Partners 1-0-23	0.07 lbs. K
07-Apr-98	Turf Partners 7-0-0	0.02 lbs. N	04-Aug-98	Turf Partners 1-0-23	0.07 lbs. K	17-Nov-98	Turf Partners 7-32-6	0.02 lbs. N
07-Apr-98	Turf Partners 1-0-23	0.07 lbs. K	04-Aug-98	Turf Partners 24-0-0	0.07 lbs. N	25-Nov-98	Turf Partners 7-0-0	0.02 lbs. N
15-Apr-98	Turf Partners 24-0-0	0.07 lbs. N	04-Aug-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N	25-Nov-98	Turf Partners 7-32-6	0.02 lbs. N
15-Apr-98	Turf Partners 1-0-23	0.07 lbs. K	11-Aug-98	Turf Partners 1-0-23	0.07 lbs. K	25-Nov-98	Turf Partners 1-0-23	0.07 lbs. K
15-Apr-98	Nutriculture 28-8-18	0.08 lbs. N	15-Aug-98	Best 25-4-8	0.55 lbs. N	03-Dec-98	Best 10-4-16	0.47 lbs. N
20-Apr-98	Turf Partners 7-0-0	0.02 lbs. N	17-Aug-98	Gold-N-Grow 10-0-0 w/iron	0.03 lbs. N			
							TOTAL - 1998	11.09 lbs. N
								7.56 lbs. P
								14.49 lbs. K

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

TABLE E. 1998 MANAGEMENT - ON-SITE BENTGRASS TEST AT LAKEWOOD, CO (FOX HOLLOW AT LAKEWOOD)

ESTABLISHMENT	FERTILIZATION			FUNGICIDES			
Seeding date	4-Sep-97	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None						
FACTORS OF PLAY		4-Sep-97	Scotts Starter	0.49 lb./N			
		15-Sep-97	Scotts HD Super Greens	0.53 lb. N	7-Oct-97	Chipco 26019	
		26-Sep-97	Floratine Equalize & pkg.	0.08 lb. N	Late fall 1997	FF II	labeled
		7-Oct-97	Ammonium Sulfate	0.05 lb. N	2-Apr-98	Heritage	1
Date opened for play	1-Jul-98	10-Oct-97	15-3-18	0.5 lb. N			
Date closed for play	not closed	20-Oct-97	Ammonium Sulfate	0.2 lb. N	OTHER PRODUCTS		
	except for snow	4-Mar-98	Nature Safe 8-3-5	0.53 lb. N			
	covered periods	27-Apr-98	Scotts 20-0-17	0.33 lb. N	Date(s)	Product	Rate (oz./M)
Type of spikes allowed	softspikes	6-May-98	Nature Safe 8-3-5	0.6 lb. N			
Uses of green	putting, chipping,	6-May-98	Nitroform 38-0-0	1.14 lb. N	28-Aug-97	Scotts STEP (trace elements)	
		6-May-98	Map 11-52-0	1 lb. P	20-Oct-97	Floratine Equalize & pkg.	
		6-May-98	Poly-K 0-0-50	1.5 lb. K	23-Mar-98	Scotts STEP (trace elements)	
		15-May-98	Scotts 31-3-10	0.62 lb. N	6-May-98	Pro-Mag 36 (Mg)	
		9-Jun-98	Ammonium Sulfate	0.096 lb. N	6-May-98	Gypsum	
		9-Jun-98	Now Tiger Turf	0.02 lb. N	9-Jun-98	Astron (Ca, Fe)	
MOWING		9-Jun-98	Equalizer	0.034 lb. N	9-Jun-98	Renaissance (Mg, S, Fe, Mn)	
		17-Jun-98	Scotts STEP	0.9 lb. N	9-Jun-98	Calphex (Ca)	
		25-Jun-98	Ammonium Sulfate	0.1 lb. N	9-Jun-98	Phlexmag (Mg)	
		25-Jun-98	Potassium Nitrate 14-0-46	0.07 lb. N	9-Jun-98	Phlexman (Mn)	
		21-Jul-98	Ammonium Sulfate	0.08 lb. N	25-Jun-98	Ruffin Fe	
		21-Jul-98	Potassium Nitrate 14-0-46	0.07 lb. N	25-Jun-98	Calphex	
		19-Aug-98	Ammonium Sulfate	0.08 lb. N	25-Jun-98	Phlexmag	
		19-Aug-98	Potassium Nitrate	0.04 lb. N	25-Jun-98	Phlexman	
		19-Aug-98	Tiger Turf	0.01 lb. N	25-Jun-98	Surfside (wetting agent)	
		19-Aug-98	Equalizer	0.01 lb. N	21-Jul-98	Renaissance	
		4-Sep-98	Ammonium Sulfate	0.1 lb. N	21-Jul-98	Perk-Up (Ca 8%)	
		4-Sep-98	Potassium Nitrate	0.02 lb. N	21-Jul-98	Phlexmag	
CULTIVATION		4-Sep-98	Now Turf Starter	0.03 lb. P	21-Jul-98	Phlexman	
		9-Sep-98	Nature Safe 8-3-5	0.6 lb. N	21-Jul-98	Flexx (Fe, Mg, Mn)	
		9-Sep-98	Nitroform 38-0-0	1.14 lb. N	19-Aug-98	Renaissance	
		9-Sep-98	Map 11-52-0	1 lb. P	19-Aug-98	Calphex	
		9-Sep-98	Poly-K 0-0-50	1.5 lb. K	19-Aug-98	Phlexmag	
		29-Sep-98	Ammonium Sulfate	0.08 lb. N	19-Aug-98	Phlexman	
		29-Sep-98	Potassium Nitrate	0.04 lb. N	19-Aug-98	Astron	
		29-Sep-98	Tiger Turf	0.01 lb. N	4-Sep-98	Calphex	
		29-Sep-98	Equalizer	0.01 lb. N	4-Sep-98	Maxi-Plex (humates)	
		21-Oct-98	Scotts Contec 17-3-17	0.5 lb. N	4-Sep-98	Renaissance	
HERBICIDES					4-Sep-98	Phlexmag	
		Date(s)	Product	Rate (oz./M)	4-Sep-98	Phlexman	
		None			9-Sep-98	Pro-Mag	
INSECTICIDES					9-Sep-98	Gypsum	
		Date(s)	Product	Rate (oz./M)	29-Sep-98	Astron	
		None			29-Sep-98	Calphex	
					29-Sep-98	Maxi-Plex (humates)	
					29-Sep-98	Renaissance	
					29-Sep-98	Phlexmag	
					29-Sep-98	Phlexman	
NOTES/COMMENTS							

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TABLE F. 1998 MANAGEMENT - ON-SITE BENTGRASS TEST AT GLENVIEW, IL (NORTH SHORE COUNTRY CLUB)

ESTABLISHMENT		FERTILIZATION			INSECTICIDES		
		Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Seeding date	28-Aug-97						
Problems during	slow to fill, overseeded at 1/2 rate in mid-Sept.	26-Mar-98	K-Power 12-0-42	0.6 lb. N	6-Jul-98	Conserve	0.77
		26-Mar-98	16-4-16	1 lb. N	13-Jul-98	Conserve	2.5
		30-Mar-98	Nutraculture 12-31-14	0.05 lb. N	12-Aug-98	Conserve	1.25
		9-Apr-98	Nature Safe 8-3-5	0.8 lb. N	17-Aug-98	Mach 2	0.53
FACTORS OF PLAY		13-Apr-98	Ringer 5-10-3	0.31 lb. N			
		22-Apr-98	K-Power 13-24-12	0.31 lb. N	FUNGICIDES		
Date opened for play	15-May-98	22-Apr-98	K-Power 16-4-16	0.44 lb. N			
Date closed for play	15-Nov-98	29-Apr-98	Biocomposte Forte	0.26 lb. N	Date(s)	Product	Rate (oz./M)
Type of spikes allowed	softspikes	27-May-98	Ringers 5-10-3	0.29 lb. N			
Uses of green	putting, chipping, target	27-May-98	Huma Base 4-3-0	0.04 lb. N	30-Mar-98	Bayleton	4.6
		15-Jun-98	Biosol 6-3-1	0.27 lb. N	10-Apr-98	Daconil	5.5
		26-Jun-98	Quelant Ca 5-0-0	0.01 lb. N	10-Apr-98	Banol	2.5
MOWING		2-Jul-98	Quelant Ca 5-0-0	0.01 lb. N			
		6-Jul-98	Quelant Ca 5-0-0	0.01 lb. N	HERBICIDES		
Initial height	0.310"	13-Jul-98	Quelant Ca 5-0-0	0.01 lb. N			
Current height	0.135"	20-Jul-98	Quelant Ca 5-0-0	0.01 lb. N	Date(s)	Product	Rate (oz./M)
Frequency	7 days/week	23-Jul-98	Biosol 6-3-1	0.27 lb. N			
Type of mower	walking	23-Jul-98	Biocomposte Forte	0.13 lb. N	None		
Rollers used	None	17-Aug-98	Quelant Ca 5-0-0	0.01 lb. N			
Groomers used	None	17-Aug-98	Link 24 24-0-0	0.02 lb. N			
		24-Aug-98	Plasma 12-5-3	0.06 lb. N	NOTES/COMMENTS		
CULTIVATION		28-Aug-98	Plasma 12-5-3	0.06 lb. N			
		4-Sep-98	Plasma 12-5-3	0.09 lb. N			
Aerification - dates	None	8-Sep-98	Plasma 12-5-3	0.01 lb. N			
Aerification - type		10-Sep-98	Nature Safe 8-3-5	0.36 lb. N			
Verticutting	None	12-Sep-98	Biosol 6-3-1	0.23 lb. N			
Dates of topdressing	3/24, 4/6, 4/13, 5/11, 6/1, 6/14, 7/6, 8/24, 9/21, 9/28, 10/26, 11/3, 11/5	14-Sep-98	Biosol 6-3-1	0.18 lb. N			
		30-Sep-98	MAP 12-61-0	0.30 lb. N			
		2-Oct-98	K-Power 12-0-42	0.33 lb. N			
		9-Oct-98	Nutraculture 10-20-20	0.31 lb. N			
		9-Oct-98	Plasma 12-5-3	0.06 lb. N			
Other cultural practices	None	23-Oct-98	0-0-38	0.71 lb. K			
		27-Oct-98	Lesco IBDU 10-18-22	0.20 lb. N			
		16-Dec-98	Milorganite	1.07 lb. N			

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OTHER PRODUCTS

Date(s)	Product	Rate (oz./M)
10-Apr-98	Biogain WSP Fe	0.03 lb./M
13-Apr-98	BioTrek 22G	0.38 lb./M
13-Apr-98	Greensand	10 lbs./M
29-Apr-98	Greensand	5 lbs./M
29-Apr-98	BioTrek 22G	5.63 lbs./M
3-May-98	Rootshield (Trichoderma)	1.06
3-May-98	A-13 Bacillus Subtilis	1.7
3-May-98	Naturalis-T	4
3-May-98	P. areofacions	16
3-May-98	Companion	16
27-May-98	TX-1	4
27-May-98	Nutribac	32
27-May-98	Gnatrol	16
27-May-98	Compost Tea	16
27-May-98	Organic Garden Tea	0.25
27-May-98	Plant Growth Activator	2
27-May-98	Mycostop Streptomyces	2.5 gr./M
27-May-98	Azosparrillum	8
27-May-98	Astron	1.25
27-May-98	Bioterra Plus	48
27-May-98	Biogain WSP Fe	0.03 lb./M
27-May-98	Biogain WSP	0.03 lb./M
26-Jun-98	Macro-sorb foliar	0.05 lb./M
26-Jun-98	Tuff-Turf	0.16 lb./M
26-Jun-98	Agri-Plex	0.05 lb./M
26-Jun-98	Nutrobac Growth Medium	40
26-Jun-98	Pseudomonas	16
26-Jun-98	Azospirillum brasilense	16
26-Jun-98	Organica Plant Growth Activator	0.63 lb./M
26-Jun-98	3D	0.875
26-Jun-98	Mycostop Streptomyces	0.63 gr./M
2-Jul-98	Macro-sorb foliar	0.078 lb./M
2-Jul-98	Agri-Plex	0.06 lb./M
2-Jul-98	3-D	0.14 lb./M
2-Jul-98	Tuff-Turf	0.14 lb./M
2-Jul-98	Naturalist	2
6-Jul-98	Macro-sorb foliar	0.05 lb./M
6-Jul-98	Tuff-Turf	0.08 lb./M
6-Jul-98	Agri-Plex	0.05 lb./M

OTHER PRODUCTS

Date(s)	Product	Rate (oz./M)
6-Jul-98	Biogain WSP Fe	0.03 lb./M
13-Jul-98	Macro-sorb foliar	0.09 lb./M
13-Jul-98	Tuff-Turf	0.11 lb./M
13-Jul-98	3-D	0.09 lb./M
13-Jul-98	Biogain WSP	0.03 lb./M
13-Jul-98	Agri-Plex	0.05 lb./M
20-Jul-98	Biogain WSP Fe	0.03 lb./M
20-Jul-98	Agri-Plex	0.15 lb./M
20-Jul-98	Bio-F	24
20-Jul-98	Plant Growth Activator	0.63 lb./M
20-Jul-98	Pseudomonas	8
20-Jul-98	BioTrek 22G	5
17-Aug-98	Macro-sorb foliar	0.09 lb./M
17-Aug-98	Tuff-Turf	0.13 lb./M
17-Aug-98	Agri-Plex	0.04 lb./M
17-Aug-98	Amino Acid	0.05 lb./M
17-Aug-98	3-D	0.05 lb./M
17-Aug-98	Calphex	0.53
24-Aug-98	Tuff-Turf	0.19 lb./M
24-Aug-98	Agri-Plex	0.06 lb./M
24-Aug-98	Macro-sorb foliar	0.19 lb./M
24-Aug-98	3-D	0.19 lb./M
24-Aug-98	Amino Acid	0.06 lb./M
24-Aug-98	Bio B	5.63
24-Aug-98	Astron	3
24-Aug-98	Perk-Up	3
28-Aug-98	Amino Acid	0.08 lb./M
28-Aug-98	Bio B	12.39
4-Sep-98	Tuff-Turf	0.05 lb./M
4-Sep-98	D2B from Ecosoils	
4-Sep-98	Bio B	40
4-Sep-98	Earthworm Biotea	80
8-Sep-98	Tuff-Turf	0.02 lb./M
8-Sep-98	Agri-Plex	0.007 lb./M
8-Sep-98	Biogain WSP	0.03 lb./M
8-Sep-98	Perk-Up	2.375 lb./M
30-Sep-98	Perk-Up	1.625 lb./M
9-Oct-98	Biogain WSP	0.03 lb./M
9-Oct-98	Amino Acid	0.125 lb./M

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TABLE G. 1998 MANAGEMENT - ON-SITE BENTGRASS TEST AT WEST LAFAYETTE, IN (PURDUE UNIVERSITY - KAMPEN GOLF COURSE)

ESTABLISHMENT	FERTILIZATION				HERBICIDES		
Seeding date	3-Oct-97	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None						
		3-Oct-97	Milorganite	1.0 lb. N	None		
		3-Oct-97	14-28-14	1.0 lb. N			
FACTORS OF PLAY		28-Oct-97	Milorganite	1.0 lb. N			
		21-Nov-97	18-4-10 + micros	1.0 lb. N			
Date opened for play	27-Jun-98	3-Mar-98	Milorganite	1.0 lb. N			
Date closed for play	Dec. 98	3-Mar-98	16-28-10	2.0 lbs. P			
Type of spikes allowed	softspikes only	27-Mar-98	18-4-10 + micros	1.0 lb. N			
Uses of green	putting, chipping	3-Apr-98	18-4-10 + micros	1.0 lb. N			
		15-Apr-98	14-28-14	1.0 lb. P			
MOWING		22-Apr-98	18-4-10 + micros	1.0 lb. N			
		18-May-98	18-4-10 + micros	1.0 lb. N			
Initial height	1/4"	3-Jun-98	18-4-10 + micros	1.0 lb. N			
Current height	5/32"	1-Jul-98	18-4-10 + micros	1.0 lb. N			
Frequency	7 days/week	27-Jul-98	18-4-10 + micros	1.0 lb. N			
Type of mower	triplex	3-Aug-98	14-28-14	1.0 lb. P	6-Jul-98	Conserve	2
Rollers used	Weiehle	26-Aug-98	18-4-10 + micros	1.0 lb. N	13-Jul-98	Merit	6.4
Groomers used	None	8-Sep-98	8-3-24	1.0 lb. K	14-Aug-98	Conserve	2
		17-Sep-98	18-4-10 + micros	1.0 lb. N	9-Oct-98	Dylox	2
CULTIVATION		5-Oct-98	18-4-10 + micros	1.0 lb. N			
		16-Oct-98	8-3-24	1.0 lb. K			
Aerification - dates	None	6-Nov-98	25-5-15	1.0 lb. N			
Aerification - type	None	9-Nov-98	8-3-24	1.0 lb. K			
Verticutting	July, September	2-Dec-98	20-0-20	1.0 lb. N			
Dates of topdressing	24-May-98						
	15-Jun-98						
	20-Jul-98						
	7-Sep-98	Date(s)	Product	Rate (oz./M)			
	21-Sep-98						
	12-Oct-98	24-Jun-98	Chipco 26GT	4			
	19-Oct-98	24-Jun-98	Alliette Signature	4			
	26-Oct-98	7-Aug-98	Heritage	0.2			
	2-Nov-98	18-Aug-98	Chipco 26GT	4			
	16-Nov-98	18-Aug-98	Alliette Signature	4			
	22-Nov-98	22-Sep-98	Bayleton	0.5			
	30-Nov-98	9-Dec-98	Daconil Weatherstick	6			
		9-Dec-98	Chipco 26GT	4			
Other cultural practices	None						

INSECTICIDES

OTHER PRODUCTS

NOTES/COMMENTS

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

TABLE H. 1998 MANAGEMENT - ON-SITE BENTGRASS TEST AT FLORENCE, KY (LASSING POINTE GOLF COURSE)

ESTABLISHMENT	FERTILIZATION			HERBICIDES			
Seeding date	15-Sep-98	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during		6-Jan-98	0-0-45	2 lbs. K	None		
		6-Jan-98	Magnesium sulfate	2 lbs.			
FACTORS OF PLAY		15-Apr-98	Scotts starter/STEP micros	0.75 lb. N	INSECTICIDES		
		1-Jun-98	Milorganite		Date(s)	Product	Rate (oz./M)
Date opened for play	6-Jun-98	15-Jun-98	Milorganite				
Date closed for play	1-Nov-98	22-Jun-98	Scotts 19-3-19	0.75 lb. N			
Type of spikes allowed	softspikes	5-Aug-98	Milorganite		22-May-98	Tempo	0.25 lb./Acre
Uses of green	putting	28-Sep-98	Scotts 18-9-18	0.75 lb. N	24-Jun-98	Tempo	0.25 lb./Acre
		5-Nov-98	Scotts 19-3-19	0.75 lb. N	10-Jul-98	Tempo	0.25 lb./Acre
MOWING					21-Jul-98	Tempo	0.25 lb./Acre
					12-Aug-98	Tempo	0.25 lb./Acre
Initial height	3/16"	FUNGICIDES			15-Sep-98	Tempo	0.25 lb./Acre
Current height	5/32"				20-Oct-98	Tempo	0.25 lb./Acre
Frequency	7 days/week	Date(s)	Product	Rate (oz./M)	OTHER PRODUCTS		
Type of mower	triplex						
Rollers used	Wheilie	14-Jan-98	Scotts FF11		Date(s)	Product	Rate (oz./M)
Groomers used	None	20-Feb-98	PMAS	1			
		6-Apr-98	Daconil Ultrex	6.5 lb./Acre			
CULTIVATION		28-Apr-98	Daconil Ultrex	6.5 lb./Acre	6-Apr-98	Primo	3 oz./Acre
		6-May-98	Bayleton	1	28-Apr-98	Primo	3 oz./Acre
Aerification - dates	5/13, 6/25, 10/15	6-May-98	Daconil Ultrex	6.5 lb./Acre	22-May-98	Cascade (wetting agent)	8
Aerification - type		3-Jun-98	Chipco 26 GT	3	3-Jun-98	Primo	3 oz./Acre
Verticutting	None	15-Jun-98	Chipco 26 GT	3	15-Jun-98	Primo	3 oz./Acre
Dates of topdressing	5/26, 7/13, 9/8, 10/1, 10/26, 11/16	10-Jul-98	Daconil Ultrex	6.5 lb./Acre	30-Jun-98	Cascade (wetting agent)	8
		21-Jul-98	Daconil Ultrex	6.5 lb./Acre	12-Aug-98	Primo	3 oz./Acre
Other cultural practices	rolled with Toro	3-Aug-98	Chipco 26019 GT	3	30-Aug-98	Primo	3 oz./Acre
	triplex rollers on	3-Aug-98	Fore	12 lb./Acre	15-Sep-98	Primo	3 oz./Acre
	6/1 and 6/25	12-Aug-98	Chipco 26019 GT	3	9-Oct-98	Primo	3 oz./Acre
		30-Aug-98	Daconil Ultrex	6.5 lb./Acre			
		15-Sep-98	Fore	12 lb./Acre	NOTES/COMMENTS		
		9-Oct-98	Bayleton	0.5	Every time greens were sprayed, we alternated 1/8 lb. of Scotts fluid 18-3-6 w/ Iron and Scotts fluid Mn/Mg w/ micros. Also, spoonfeeding of 9-0-32 was applied monthly.		

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TABLE K. 1998 MANAGEMENT - ON-SITE BENTGRASS TEST AT DALLAS, TX (BENT TREE COUNTRY CLUB)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Seeding date	10-Sep-97	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None	March -June every two weeks	14-4-10 6-0-0 0-0-13		October, Dec.	Scotts Weedgrass Preventer	3.4 lbs./M
FACTORS OF PLAY					INSECTICIDES		
Date opened for play		monthly April-June	Turf Plex VI		Date(s)	Product	Rate (oz./M)
Date closed for play	not closed						
Type of spikes allowed	softspikes		Scotts 22-0-12		June	Battle GC	
Uses of green	putting, chipping		Scotts 18-9-18 ISK 18-3-16 SulPoMag 0-0-22 Polyon 0-0-46 Polyon 0-0-50		July August	Orthene WSP Battle GC	
MOWING					OTHER PRODUCTS		
Initial height	3/8"			TOTAL N: 6.95 lbs.	Date(s)	Product	Rate (oz./M)
Current height	1/8"			TOTAL P: 1.73 lbs.			
Frequency	6 days/week			TOTAL K: 12.17 lbs.	every two weeks from July- December	Astron FG-20 Knife Now 12-0-12 Now 6-12-3 Now 4-4-16 Phlex-Man Phlex-Mag Renaissance	
Type of mower	walking						
Rollers used	June-Sept. (solid)						
Groomers used	Oct.-May depends on weather						
CULTIVATION		FUNGICIDES					
Aerification - dates	Hydroject monthly-June-Sept.	Date(s)	Product	Rate (oz./M)			
Aerification - type	Deep drill - September 23	weekly May-Sept.	Banol or Subdue WSP		monthly from July-Dec.	Perk-Up Maxiplex Prevacle	
Verticutting	bimonthly-March-May & Oct. monthly-June, July, Sept.		Daconil Ultrex or Chipco 26019 WP or Banner Maxx or Cleary 3336 WP or ProStar 70WP				
Dates of topdressing	bimonthly-Feb-June, Oct.-Dec. monthly-July, Aug., Sept.		Aliette or Fore			Pro-Mag 36 Mini-Mag Gypsum	
Other cultural practices	None	August and Sept. Spring: 2 applications Fall: 2 applications Spring	Heritage Heritage Koban 30	0.4 0.4 6 oz. as spring drench application at 4 gal./M			
					NOTES/COMMENTS		
					Kept green as dry as possible. It was necessary to hand cool greens during excessive heat in June-Sept. Had more than 50 days over 100 degrees F with 40 in a row. Record highs over 110 degrees F in July and Sept.		

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

TABLE L. 1998 MANAGEMENT - ON-SITE BENTGRASS TEST AT VIENNA, VA (WESTWOOD GOLF COURSE)

ESTABLISHMENT		FERTILIZATION			HERBICIDES		
Seeding date	5-Sep-97	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during	None						
		5-Sep-97	19-19-19	2 lbs. N	28-May-98	Acclaim	4 oz./Acre
		5-Sep-97	Milorganite	1/2" on top	15-Jul-98	Acclaim	3 oz./Acre
FACTORS OF PLAY		11-Sep-97	Newsom 16-4-8	0.5 lb. N	24-Aug-98	Acclaim	3 oz./Acre
		18-Sep-97	Newsom 16-4-8	0.5 lb. N			
Date opened for play	20-Apr-98	2-Oct-97	Newsom 16-4-8	0.5 lb. N	INSECTICIDES		
Date closed for play	not closed	13-Oct-97	Newsom 16-4-8	0.5 lb. N			
Type of spikes allowed	softspikes	29-Oct-97	Newsom 14-1-11	0.5 lb. N	Date(s)	Product	Rate (oz./M)
Uses of green	putting, chipping	5-Nov-97	Newsom 16-4-8	0.5 lb. N			
		24-Nov-97	Newsom 14-1-11	0.5 lb. N	28-May-98	Tempo	6 oz./Acre
MOWING		3-Apr-98	Newsom 14-1-11	0.5 lb. N	29-Jul-98	Tempo	6 oz./Acre
		10-Apr-98	Newsom 14-1-11	0.5 lb. N	24-Aug-98	Tempo	6 oz./Acre
Initial height	3/8"	22-Apr-98	Newsom 14-1-11	0.5 lb. N	21-Sep-98	Tempo	6 oz./Acre
Current height	1/8"	29-Apr-98	Newsom 16-4-8	0.5 lb. N	19-Oct-98	Tempo	6 oz./Acre
Frequency	7 days/week	1-Jun-98	Newsom 14-1-11	0.45 lb. N			
Type of mower	walking	6-Jul-98	Country Club 10-5-40	0.08 lb. N	OTHER PRODUCTS		
Rollers used	2 times/month	31-Aug-98	Country Club 10-18-18	0.5 lb. N			
Groomers used	None	11-Sep-98	Newsom 14-1-11	0.5 lb. N	Date(s)	Product	Rate (oz./M)
		29-Sep-98	Nature Safe 5-6-6	0.25 lb. N			
CULTIVATION		8-Oct-98	Newsom 14-1-11	0.45 lb. N	12-Nov-97	Ferromec	6
		26-Oct-98	Nature Safe 5-6-6	0.25 lb. N	12-Nov-97	Roots 1-2-3	6
Aerification - dates	Spring once, Fall once	18-Nov-98	Par Ex IBDU 21-3-16	0.6 lb. N	15-Dec-97	Ferromec	6
Aerification - type	Spring - solid tine 1/2"				15-Dec-97	Roots 1-2-3	6
	Fall - hollow tine 1/2"	FUNGICIDES			14-May-98	Ferromec	3
Verticutting	None				28-May-98	Ferromec	6
Dates of topdressing	Spring once, Fall once	Date(s)	Product	Rate (oz./M)	28-May-98	Primer (wetting agent)	3
	once during growing season				17-Jun-98	Primo	6 oz./Acre
Other cultural practices	None	12-Nov-97	Chipco 26019	5	6-Jul-98	Ferromec	4
		12-Nov-97	PMAS	1	6-Jul-98	Primer	5
		15-Dec-97	Daconil	4	21-Jul-98	Ferromec	4
		15-Dec-97	PMAS	1	21-Jul-98	Primer	6
		21-Apr-98	Banner Maxx	1.25	29-Jul-98	Ferromec	4
		21-Apr-98	Heritage	0.4	29-Jul-98	Primo	6 oz./Acre
		14-May-98	Daconil	4	21-Sep-98	Ferromec	5
		14-May-98	Fore	3	21-Sep-98	Primo	10 oz./Acre
		28-May-98	Bayleton	1	19-Oct-98	Ferromec	8
		28-May-98	Heritage	0.4			
		17-Jun-98	Daconil	4	NOTES/COMMENTS		
		17-Jun-98	Fore	4			
		26-Jun-98	Daconil	4	FUNGICIDES		
		6-Jul-98	Daconil	4			
		15-Jul-98	Daconil	4			
		15-Jul-98	Fore	4	Date(s)	Product	Rate (oz./M)
		15-Jul-98	Subdue Maxx	1			
		21-Jul-98	Fore	4	21-Sep-98	Daconil	5
		29-Jul-98	Daconil	4	21-Sep-98	Cleary's 3336	1
		29-Jul-98	Heritage	0.4	19-Oct-98	Bayleton	1.5
		24-Aug-98	Daconil	4	10-Dec-98	Daconil	4
		2-Sep-98	Daconil	4	10-Dec-98	PMAS	1

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

TABLE M. 1998 MANAGEMENT - ON-SITE BENTGRASS TEST AT SNOQUALMIE, WA (TPC AT SNOQUALMIE RIDGE)

ESTABLISHMENT	FERTILIZATION			HERBICIDES			
Seeding date	8-Jun-98	Date(s)	Product	Rate (lbs./M)	Date(s)	Product	Rate (oz./M)
Problems during		8-Jun-98	19-26-5	1 lb. N	None		
		19-Jun-98	19-26-5	1 lb. N			
FACTORS OF PLAY		23-Jun-98	21-0-0	0.5 lb. N			
		26-Jun-98	19-26-5	1 lb. N			
Date opened for play		8-Jul-98	19-26-5	1 lb. P			
Date closed for play		18-Jul-98	19-26-5	1 lb. P			
Type of spikes allowed		31-Jul-98	19-26-5	1 lb. P			
Uses of green		5-Aug-98	29-2-3	1 lb. N			
		25-Aug-98	19-3-19	1 lb. N			
MOWING		8-Sep-98	21-0-0	0.75 lb. N			
		25-Sep-98	19-3-19	0.5 lb. N	INSECTICIDES		
Initial height	1/4"	2-Oct-98	15-0-30	1 lb. K			
Current height	3/16"	24-Oct-98	19-3-19	0.5 lb. N	Date(s)	Product	Rate (oz./M)
Frequency		5-Nov-98	0-0-50	0.5 lb. K			
Type of mower		11-Dec-98	15-0-28	0.5 lb. K	None		
Rollers used							
Groomers used							
CULTIVATION							
Aerification - dates		FUNGICIDES		OTHER PRODUCTS			
Aerification - type		Date(s)	Product	Rate (oz./M)	Date(s)	Product	Rate (oz./M)
Verticutting							
Dates of topdressing	6/30, 7/8,						
	7/16, 7/30,	8-Sep-98	Pythium control		12-Nov-98	Gypril	10 lb./M
	8/19, 8/27,				17-Dec-98	Gypril	10 lb./M
	9/23, 10/21	14-Jul-98	Pythium control				
	1/4" each						
	date	24-Jul-98	Subdue				
		9-Sep-98	Heritage	Recommended			
Other cultural practices		5-Oct-98	Heritage		NOTES/COMMENTS		
		17-Nov-98	Scotts Flowable Fungicide II	Normal			
		14-Dec-98	Scotts Fungicide IX	Normal			

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

TABLE 1.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT BIRMINGHAM, AL (COUNTRY CLUB OF BIRMINGHAM) 1/
 1998 DATA

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

NAME	COLOR DECEMBER	PERCENT ESTABLISHMENT FALL	QUALITY RATINGS		QUALITY RATINGS IN 1998												
			NOV 97	DEC 97	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
PENN A-4	5.3	65.0	6.0	6.7	7.0	7.7	6.0	7.7	8.0	6.7	4.3	4.3	6.0	5.7	5.7	6.3	6.3
PENN A-1	6.0	43.3	5.3	5.7	5.7	6.0	5.7	7.7	7.0	6.7	4.3	4.7	6.3	7.0	6.3	7.0	6.2
IMPERIAL	4.0	66.7	6.7	6.0	5.0	5.7	5.0	7.3	5.3	7.0	6.7	6.0	5.0	6.7	5.0	6.7	5.9
GRAND PRIX (LCB-103)	4.0	63.3	5.7	6.0	6.0	6.0	5.3	7.0	6.0	7.0	5.0	4.7	5.3	6.0	5.3	7.0	5.9
CRENSHAW	5.3	66.7	6.3	6.7	6.0	6.7	6.0	7.0	5.3	7.0	5.0	4.7	5.0	6.0	5.0	5.7	5.8
CENTURY	4.3	66.7	6.0	6.3	5.7	7.7	6.7	7.7	6.7	6.7	3.7	3.7	5.0	4.3	4.7	5.0	5.6
PENN G-1	5.7	56.7	6.7	6.7	6.3	6.0	6.0	7.0	5.7	6.7	3.7	4.0	4.3	5.7	5.0	6.3	5.6
SR 1020	5.7	65.0	6.0	6.0	5.3	5.7	5.3	7.0	6.0	6.0	4.7	4.3	5.3	5.7	4.3	6.0	5.5
BACKSPIN	4.7	63.3	5.7	6.0	5.0	5.7	5.3	7.0	5.3	7.0	5.3	4.7	4.3	5.7	4.3	5.0	5.4
SR 1119	6.7	63.3	6.0	5.7	7.0	6.0	6.0	6.7	6.3	5.7	4.0	4.0	4.0	5.7	4.3	5.7	5.4
L-93	6.0	63.3	6.0	6.7	6.0	6.3	5.7	7.0	5.7	6.0	3.7	4.0	3.7	4.7	5.0	5.3	5.3
PENN G-6	5.0	55.0	5.7	6.0	6.3	7.0	6.0	6.7	6.3	6.0	2.3	3.0	3.7	5.0	5.0	4.7	5.2
PENNCROSS	4.0	63.3	6.3	7.0	7.3	7.3	5.0	5.3	3.3	6.0	4.7	4.7	3.3	4.7	4.0	5.0	5.1
PUTTER	5.7	71.7	5.3	6.0	5.0	5.0	4.7	6.7	4.7	6.0	4.3	4.7	4.3	6.0	4.7	5.3	5.1
PROVIDENCE	5.7	58.3	6.0	6.0	5.7	5.3	5.7	6.7	5.3	6.3	3.7	3.7	3.7	4.7	4.0	5.0	5.0
TRUELINE	5.3	53.3	4.7	6.0	5.0	5.7	4.7	6.0	4.0	6.3	4.3	4.7	3.3	5.0	4.7	5.3	4.9
VIPER	6.0	66.7	6.0	5.7	5.7	5.3	5.0	7.0	5.3	6.3	3.7	3.3	3.3	4.7	3.7	5.0	4.9
CATO	4.3	65.0	5.7	5.7	3.7	5.0	5.0	6.3	5.3	5.3	1.3	2.3	3.3	3.3	2.7	3.7	3.9
LSD VALUE	1.1	25.9	0.8	1.4	4.0	2.4	1.9	0.7	1.0	1.1	1.5	1.0	1.3	1.5	1.4	1.2	0.7
C.V. (%)	12.8	15.9	7.8	9.5	24.8	17.4	13.9	6.2	11.4	8.4	21.2	14.0	17.6	15.5	16.2	12.8	7.4

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 2.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT GREEN VALLEY, AZ (COUNTRY CLUB OF GREEN VALLEY) 1/
 1998 DATA

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

NAME	QUALITY RATINGS												MEAN
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
PENN A-4	6.3	7.0	5.7	6.3	7.7	7.3	7.7	7.0	6.3	6.7	6.7	6.3	6.8
IMPERIAL	6.3	6.7	5.3	5.7	6.3	6.3	7.3	6.0	5.7	6.7	7.0	7.0	6.4
SR 1020	7.0	6.7	5.0	5.7	6.3	6.0	6.3	5.3	5.3	7.0	7.0	8.0	6.3
CENTURY	6.7	6.3	6.3	5.7	5.7	7.0	7.0	5.7	6.0	5.3	6.0	7.0	6.2
GRAND PRIX (LCB-103)	6.3	6.7	5.0	5.0	5.3	6.0	6.3	7.3	7.0	6.7	6.7	6.3	6.2
PROVIDENCE	7.0	7.0	5.3	6.3	6.3	6.0	6.0	5.3	5.0	5.3	6.3	7.0	6.1
L-93	5.7	5.7	5.0	5.7	6.3	6.3	6.3	5.7	5.7	7.0	6.7	6.0	6.0
SR 1119	5.7	6.0	5.0	6.0	7.0	6.7	6.3	6.0	5.7	5.3	6.3	6.0	6.0
PENN G-6	5.7	5.7	5.3	5.3	5.7	6.0	6.3	6.3	6.0	5.7	6.3	6.0	5.9
CRENSHAW	6.0	6.0	4.7	5.7	5.7	6.3	5.7	6.0	5.7	5.7	6.0	6.3	5.8
TRUELINE	7.0	6.3	4.3	6.3	6.0	5.0	5.7	5.0	3.7	5.7	6.3	8.0	5.8
CATO	6.3	6.0	4.3	5.7	5.7	6.0	6.3	4.7	4.0	5.3	5.3	7.0	5.6
PENN A-1	5.0	5.3	3.7	5.3	5.3	5.7	6.0	7.0	6.7	6.3	6.3	4.7	5.6
BACKSPIN	5.3	5.0	3.7	5.7	6.0	6.3	7.3	5.0	5.0	5.7	5.7	5.7	5.5
PENNCROSS	6.0	6.0	5.7	6.3	5.0	4.7	5.0	4.7	4.7	5.7	6.0	6.7	5.5
PENN G-1	4.7	4.7	4.0	5.3	5.0	5.7	6.3	5.3	5.7	6.7	6.7	5.0	5.4
VIPER	5.3	5.3	4.7	5.3	5.7	6.0	6.3	5.0	4.3	5.7	5.3	6.3	5.4
PUTTER	5.3	5.7	4.3	4.7	5.0	5.0	4.3	3.7	4.0	5.0	5.3	5.7	4.8
LSD VALUE	2.0	2.7	1.9	2.3	1.2	0.9	1.3	1.6	1.4	3.0	-	2.0	0.7
C.V. (%)	15.0	17.0	18.2	14.2	11.1	9.0	12.0	15.9	14.8	17.8	16.0	15.6	7.1

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 2. (CONT'D)

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NIEP ON-SITE BENTGRASS TEST
 AT GREEN VALLEY, AZ (COUNTRY CLUB OF GREEN VALLEY) 1/
 1998 DATA

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

	E S T A S S E S S M E N T																						
	G	G	T	E	D	D	D	T															
	E	R	E	E	ES	ES	E	E	W	E	S	S	IRF	IR	IR	IR	IR	IR	IR	IR	IR		
N	NC	E	X	DV	NP	NU	N	FR	IC	LOP	H	MDN	MDR	MDM	MDA	MD	MD	MD	MDU	MIE	MDT		
A	EO	E	LT	LI	SR	SM	SF	RA	NO	TUR	MF	EIU	EIU	EIA	EIP	EI	EIJ	EIJ	EIG	EIM	EIO		
M	TL	N	EU	IG	II	IM	IA	ON	TL	ITI	EA	TNA	TNA	TNR	TNR	TNM	TNU	TNU	TNU	TNB	TNB		
E	IO	U	AR	NO	TN	TE	TL	SC	EO	N	N	NL	EGR	EGR	EGC	EGI	EGA	EGN	EGL	EGS	EGE		
	CR	P	FE	GR	YG	YR	YL	TE	RR	G	G	TL	RSY	RSY	RSH	RSL	RSY	RSE	RSY	RST	RSR		
PENN A-4	6.0	7.0	7.3	3.7	7.0	7.3	7.0	7.0	6.3	5.7	97.0	107.7	112.3	89.7	94.7	90.7	95.3	86.7	91.3	84.7	68.7	83.7	86.7
IMPERIAL	5.3	6.0	7.0	2.7	6.3	7.0	7.0	5.3	6.3	6.3	97.0	107.3	112.3	90.0	91.0	97.0	95.3	97.7	104.7	93.7	74.3	83.0	94.3
SR 1020	5.7	6.0	6.3	2.0	6.7	6.0	6.7	6.3	5.7	6.3	97.0	106.7	110.7	85.7	86.7	88.3	95.3	87.7	97.0	91.7	71.3	85.7	89.7
CENTURY	5.3	6.0	7.0	2.7	6.7	6.7	6.7	7.7	6.0	6.3	92.7	111.3	111.7	86.7	90.0	104.3	94.7	93.7	101.0	92.3	70.0	87.0	89.7
LCB-103	5.3	5.0	6.3	4.3	6.3	7.0	7.0	7.3	5.7	6.3	94.3	112.0	111.3	94.7	92.7	96.3	98.0	101.3	103.7	87.7	65.3	83.7	89.0
PROVIDENCE	6.0	6.7	6.3	3.0	6.7	6.0	6.3	7.3	6.0	6.0	96.0	98.0	117.7	87.3	88.3	103.7	92.3	87.0	96.7	89.7	69.7	87.3	87.0
L-93	6.3	6.7	6.3	3.0	6.3	6.7	6.7	7.0	5.7	5.7	92.7	110.7	114.0	91.7	92.0	103.7	94.3	91.7	108.0	90.3	75.0	84.0	94.7
SR 1119	6.3	7.0	6.7	2.3	6.3	6.7	5.7	6.3	6.0	6.7	94.0	102.7	111.7	85.0	86.3	92.7	87.0	90.7	97.0	87.7	65.7	88.0	89.3
PENN G-6	5.7	6.0	6.0	4.0	6.0	6.3	6.3	6.0	5.7	5.3	97.0	102.7	110.0	87.3	93.3	98.3	89.3	90.0	95.7	89.0	66.7	85.3	81.7
CRENSHAW	6.7	6.7	6.3	3.7	6.3	5.7	6.0	4.7	5.7	5.7	96.0	111.0	115.0	85.7	92.3	89.7	100.0	92.0	98.3	89.0	70.7	83.3	88.3
TRUELINE	6.0	6.7	6.0	4.0	6.7	6.0	6.3	5.3	5.3	4.0	97.3	103.7	112.0	91.0	88.3	89.3	93.0	93.3	103.7	91.3	72.7	89.0	86.3
CATO	5.7	6.7	6.3	2.7	6.0	6.0	5.7	5.7	5.3	4.7	93.3	104.7	114.7	85.0	87.0	95.0	95.3	84.3	102.3	87.0	69.7	80.0	85.0
PENN A-1	6.3	6.7	6.0	1.7	5.7	6.3	6.0	5.3	5.0	5.7	91.7	104.0	107.3	95.3	90.7	96.7	93.0	98.0	106.7	94.3	72.7	92.0	85.3
BACKSPIN	5.0	6.0	7.0	2.7	6.3	6.7	6.0	4.7	5.3	4.3	94.7	101.3	113.3	89.3	90.3	97.3	93.3	88.7	95.3	89.0	70.7	89.3	84.0
PENNCROSS	4.7	5.3	5.7	2.7	6.3	5.0	6.0	8.3	5.7	7.7	95.7	101.0	116.3	82.0	85.7	91.7	88.3	81.7	97.0	84.3	61.3	78.3	74.3
PENN G-1	6.3	6.7	6.0	3.3	6.3	6.3	6.7	6.3	5.3	5.3	91.7	108.3	118.3	91.0	86.7	97.7	95.0	99.0	104.3	94.3	71.0	91.0	90.7
VIPER	6.7	7.7	6.3	4.0	6.3	5.7	5.7	5.3	5.0	5.7	94.7	103.7	104.7	86.7	91.3	91.7	94.0	86.0	99.7	90.7	75.3	84.7	90.3
PUTTER	5.0	5.7	6.0	5.0	5.7	5.0	6.0	5.7	4.7	4.0	96.0	101.3	109.3	83.3	91.3	92.7	85.7	83.0	99.0	87.3	68.7	85.7	81.7
LSD VALUE	0.8	0.8	0.8	2.0	1.7	0.7	0.8	1.4	1.4	1.7	7.1	-	-	-	12.4	27.9	-	13.4	-	-	-	-	17.8
C.V. (%)	8.2	7.9	6.7	30.7	9.3	7.1	7.1	13.7	10.6	16.6	2.9	8.5	6.2	8.2	4.9	9.6	8.9	7.2	9.5	7.4	9.7	8.6	8.0

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 3. MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS

IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT MURRIETA, CA (SCGA MEMBERS CLUB) 1/
 1998 DATA

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

NAME	GENETIC COLOR	STIMPMETER READINGS		QUALITY RATINGS						
		JUNE	DECEMBER	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
PENN A-4	8.0	102.0	109.7	7.3	7.0	7.3	7.7	7.3	6.7	7.2
CENTURY	7.7	102.3	111.0	7.0	6.7	7.0	7.0	7.0	6.7	6.9
GRAND PRIX (LCB-103)	7.3	103.0	113.0	6.3	7.0	6.7	6.3	6.7	6.0	6.5
PENN A-1	7.3	103.7	113.3	6.3	7.0	6.3	6.3	7.0	6.0	6.5
PENN G-1	7.3	99.3	107.7	6.3	6.3	6.7	6.3	7.0	6.3	6.5
SR 1119	7.0	102.0	111.0	6.7	6.3	6.0	6.7	6.7	6.0	6.4
BACKSPIN	7.0	100.7	109.7	6.3	6.0	6.0	6.3	7.0	6.0	6.3
IMPERIAL	7.0	101.3	109.7	6.3	6.3	6.0	6.0	7.0	6.0	6.3
PENN G-6	7.0	93.7	101.0	6.0	6.7	6.3	6.3	6.7	6.0	6.3
CATO	7.3	97.0	104.7	5.7	6.7	6.0	6.0	6.7	6.0	6.2
L-93	7.0	98.0	107.3	6.0	6.7	5.7	6.3	6.7	6.0	6.2
PROVIDENCE	6.7	97.3	105.7	6.0	6.0	6.0	6.0	7.0	6.0	6.2
SR 1020	7.0	98.3	106.7	6.0	6.7	6.0	6.0	6.3	6.0	6.2
CRENSHAW	6.0	99.7	108.3	6.3	6.0	6.0	6.0	6.3	6.0	6.1
PUTTER	7.0	97.7	106.3	5.7	5.7	5.3	6.0	6.7	6.0	5.9
TRUELINE	6.7	99.3	108.3	5.7	5.7	5.7	6.0	6.0	6.0	5.8
VIPER	6.0	103.0	106.7	5.7	5.7	5.7	6.0	6.0	5.7	5.8
PENNCROSS	6.0	93.0	99.3	4.7	4.7	5.3	5.3	6.0	5.0	5.2
LSD VALUE	0.7	8.0	8.2	0.9	0.7	0.7	0.6	0.8	0.5	0.3
C.V. (%)	6.2	3.7	3.8	8.2	6.5	6.7	6.2	6.2	4.6	3.2

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 4.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT BURLINGAME, CA (CRYSTAL SPRINGS G. C.) 1/
 1998 DATA

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

NAME	GENETIC COLOR	LEAF TEXTURE	STIMPMETER READINGS								QUALITY RATINGS													
			MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN	
L-93	8.0	8.0	76.3	87.3	80.7	97.0	93.0	100.0	94.7	92.7	8.0	8.0	8.0	7.3	8.0	7.3	8.0	7.0	8.3	7.7	8.3	7.7	7.8	
PENN A-1	7.3	7.3	80.0	86.7	87.7	96.3	93.7	98.0	95.3	93.3	7.3	8.0	8.0	7.7	7.7	7.7	7.7	7.7	7.3	8.0	7.7	8.3	7.7	7.8
SR 1119	7.7	7.3	70.7	86.7	87.0	95.3	90.0	99.0	96.3	94.7	8.0	7.7	7.7	7.3	7.3	8.3	8.7	6.0	8.7	8.0	8.0	7.7	7.8	7.8
PENN A-4	7.3	7.7	79.7	89.3	89.0	98.3	96.3	97.3	93.7	96.0	7.3	8.0	8.0	7.3	8.0	8.3	8.3	6.0	8.3	8.3	7.3	7.0	7.7	7.7
PENN G-1	7.7	7.0	79.0	87.3	81.7	92.0	95.0	99.7	91.7	90.7	7.3	5.7	8.0	8.0	8.0	8.0	7.7	7.3	8.0	8.3	8.0	8.0	7.7	7.7
PENN G-6	7.3	7.7	80.0	87.3	90.3	94.3	95.0	99.3	97.7	94.0	8.0	8.0	8.0	7.3	7.7	8.3	8.0	6.7	7.7	7.3	7.7	8.0	7.7	7.7
VIPER	7.7	8.0	78.7	84.3	85.7	95.3	97.3	99.3	96.7	93.3	7.3	7.3	7.3	7.0	7.7	7.3	8.7	8.0	8.0	8.3	7.7	7.7	7.7	7.7
IMPERIAL	8.0	8.0	75.3	82.3	83.0	91.0	94.0	97.0	93.7	91.3	7.3	7.7	7.7	7.7	8.0	7.7	6.0	6.7	7.3	7.3	7.7	7.3	7.4	7.4
GRAND PRIX (LCB-103)	7.0	8.0	79.3	87.0	88.3	96.0	95.0	103.0	97.7	96.0	7.3	7.7	7.7	7.0	7.7	7.7	8.0	6.7	8.0	7.3	7.3	7.0	7.4	7.4
PROVIDENCE	7.3	8.0	77.7	84.0	85.7	92.3	96.7	99.3	93.7	94.7	7.7	7.0	7.0	7.0	7.7	7.3	7.7	6.7	8.7	7.7	7.7	7.3	7.4	7.4
PUTTER	7.0	7.7	78.0	85.3	91.0	93.0	98.3	100.0	94.0	94.3	7.7	7.7	7.7	8.0	7.0	7.3	7.7	6.7	6.7	7.7	7.3	7.7	7.4	7.4
SR 1020	7.0	7.3	76.0	87.7	85.0	91.3	93.7	95.0	95.3	94.0	7.7	7.3	7.7	8.0	7.0	6.0	7.7	6.3	8.3	7.0	8.0	7.3	7.4	7.4
CRENSHAW	7.3	7.0	78.7	87.7	89.0	97.7	96.3	97.7	97.0	94.7	8.0	7.3	7.3	7.0	7.7	6.7	7.0	7.0	7.7	7.3	8.0	7.0	7.3	7.3
BACKSPIN	6.7	8.0	76.3	86.3	87.3	95.3	94.3	97.7	93.7	94.7	7.7	7.7	7.0	7.3	7.0	7.0	6.7	6.7	6.7	8.0	7.7	7.3	7.2	7.2
CATO	7.0	8.0	79.3	82.0	88.0	94.0	97.7	102.0	95.3	95.3	7.7	7.7	7.7	7.3	7.3	7.7	8.0	6.3	7.7	5.7	6.3	6.7	7.2	7.2
CENTURY	7.3	7.7	77.3	84.0	88.0	93.3	96.7	99.0	94.3	94.7	7.3	7.7	7.3	7.7	7.0	6.7	7.3	7.7	7.3	6.7	6.3	7.0	7.2	7.2
TRUELINE	7.0	8.3	79.0	86.3	85.3	97.0	96.7	93.7	95.3	97.0	7.3	7.0	7.3	7.3	7.3	7.7	7.7	5.3	7.3	7.0	7.7	7.0	7.2	7.2
PENNCROSS	6.0	5.7	84.7	87.0	87.7	91.0	98.7	100.3	97.7	95.3	7.3	6.7	7.7	6.7	5.3	6.3	6.0	5.0	6.0	6.0	4.7	5.3	6.1	6.1
LSD VALUE	1.2	1.1	10.0	-	6.4	7.9	12.2	11.6	-	6.1	0.8	3.2	1.0	1.6	0.8	1.0	1.4	2.6	1.1	2.3	1.5	1.2	0.6	0.6
C.V. (%)	7.7	7.7	5.1	5.2	3.6	3.4	4.2	4.0	4.2	2.5	4.8	14.2	5.8	8.1	6.3	7.6	10.0	15.9	8.4	13.3	10.9	8.5	4.6	4.6

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 5.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT LAKEWOOD, CO (FOX HOLLOW AT LAKEWOOD) 1/
 1998 DATA

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

NAME	GENETIC		LEAF		ESTABLISHMENT RATING		QUALITY RATINGS							
	COLOR	GREENUP	TEXTURE	DENSITY	SEPTEMBER	NOVEMBER	APR	MAY	JUN	JUL	AUG	SEP	OCT	MEAN
CENTURY	6.0	6.0	8.3	8.0	4.0	6.3	5.3	7.0	7.3	7.7	8.0	8.3	8.0	7.4
PENN A-1	7.7	5.0	8.3	8.7	4.0	5.3	4.0	5.3	6.7	8.0	8.3	8.3	8.0	7.0
PENN A-4	8.0	6.0	8.7	8.7	5.7	6.0	4.0	5.3	6.7	7.7	8.3	8.7	8.7	7.0
IMPERIAL	6.7	5.3	7.7	7.7	5.0	6.3	5.3	6.3	6.7	7.0	7.3	8.0	7.7	6.9
L-93	8.0	6.0	8.0	8.0	4.0	5.3	4.0	6.0	6.3	7.7	8.0	8.3	8.0	6.9
CRENSHAW	7.0	5.3	7.7	7.0	5.7	6.7	4.7	5.0	6.0	7.0	7.3	8.0	8.0	6.6
BACKSPIN	6.0	6.0	7.3	8.0	4.0	6.7	4.3	5.3	6.0	7.0	7.3	7.7	7.7	6.5
PROVIDENCE	5.7	6.3	6.7	6.7	5.7	6.3	5.0	5.7	6.0	6.7	6.7	7.3	7.7	6.4
SR 1119	7.7	5.7	7.7	8.0	5.0	6.7	4.0	5.0	6.7	7.0	7.3	7.7	7.0	6.4
CATO	7.7	6.0	7.7	8.0	4.7	5.3	4.3	5.0	6.0	6.3	6.7	7.7	7.7	6.2
GRAND PRIX (LCB-103)	6.0	6.0	8.0	7.7	4.7	6.0	3.7	4.7	5.7	7.0	6.7	8.0	7.7	6.2
PENN G-1	7.0	5.3	8.7	7.7	6.0	5.7	3.3	4.0	5.0	6.0	6.7	8.0	7.3	5.8
PENN G-6	7.3	5.3	8.7	7.3	5.0	6.0	3.3	4.0	5.0	5.7	7.0	8.0	7.3	5.8
VIPER	8.3	6.0	7.3	8.0	5.3	5.3	3.0	4.3	5.0	5.3	6.7	7.0	6.3	5.4
SR 1020	6.7	5.0	6.7	6.7	4.3	5.7	3.3	3.7	4.3	5.0	6.0	7.0	6.7	5.1
PUTTER	6.7	6.3	6.7	6.3	4.7	6.3	2.7	3.7	4.3	5.0	5.0	7.0	7.0	5.0
TRUELINE	7.0	5.3	6.0	6.0	5.3	6.7	3.3	4.3	4.3	5.0	5.3	6.7	6.3	5.0
PENNCROSS	4.7	5.7	4.3	4.3	5.3	6.0	4.0	5.0	4.3	4.0	4.3	6.0	5.0	4.7
LS D VALUE	0.6	0.8	0.8	0.7	1.1	1.4	0.7	0.6	0.7	0.5	0.9	0.6	0.7	0.3
C.V. (%)	5.7	7.3	7.3	6.1	12.4	10.4	11.5	8.1	7.6	5.7	8.4	5.2	5.9	3.1

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 6.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT GLENVIEW, IL (NORTH SHORE COUNTRY CLUB) 1/
 1998 DATA

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

NAME	GENETIC		LEAF TEXTURE	SEEDLING VIGOR	DENSITY FALL	STIMPMETER READINGS					QUALITY RATINGS						
	COLOR	GREENUP				JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	MAY	JUN	JUL	AUG	SEP	OCT	MEAN
PENN A-4	5.0	7.0	8.0	4.3	8.3	91.0	95.3	101.7	106.7	111.7	8.7	8.0	7.7	7.7	6.7	8.0	7.8
CENTURY	5.0	6.3	8.7	4.7	8.3	92.0	95.7	98.3	101.3	107.3	8.0	7.3	7.3	8.0	7.3	7.3	7.6
PENN A-1	5.3	7.7	8.7	4.7	8.0	88.0	91.0	98.7	103.3	113.3	7.7	7.3	7.7	7.3	7.0	8.0	7.5
BACKSPIN	4.3	6.7	7.7	5.0	8.0	88.7	93.7	97.3	102.3	107.7	6.7	6.7	7.3	8.0	7.0	8.0	7.3
SR 1119	6.0	6.7	7.3	3.7	7.3	89.7	97.0	99.7	108.0	117.7	7.0	7.0	7.3	8.0	7.3	7.3	7.3
IMPERIAL	5.3	7.0	8.0	5.0	7.7	91.3	99.0	98.7	103.0	113.7	6.7	6.0	7.3	7.3	8.0	7.7	7.2
L-93	5.3	7.3	7.0	5.0	7.7	95.7	99.3	98.3	104.0	108.7	6.7	6.7	7.0	7.3	7.7	7.7	7.2
PENN G-1	5.3	6.3	8.0	4.7	8.7	93.3	96.3	99.0	105.0	109.0	7.3	6.7	7.3	7.0	7.3	7.7	7.2
PENN G-6	5.3	7.0	7.7	3.7	7.7	88.7	98.3	98.7	104.7	112.3	6.3	6.7	7.0	7.7	7.7	7.3	7.1
GRAND PRIX (LCB-103)	5.0	7.0	7.7	4.0	8.0	90.0	99.7	97.3	104.3	108.0	7.3	6.3	7.0	7.3	6.7	7.3	7.0
CRENSHAW	6.0	6.7	7.7	5.0	7.7	90.7	102.0	101.7	104.3	108.7	7.3	6.7	7.7	7.0	6.0	7.0	6.9
SR 1020	5.3	6.0	7.7	3.7	7.0	91.7	99.3	97.0	104.3	111.0	7.7	5.3	7.0	7.3	6.7	7.7	6.9
CATO	6.0	7.0	7.3	4.0	7.3	88.3	99.7	102.3	106.3	109.3	7.0	6.3	6.7	6.7	6.3	7.3	6.7
PROVIDENCE	6.0	6.7	7.3	4.3	7.7	91.7	96.3	97.7	102.7	110.3	7.0	6.0	6.7	6.7	6.3	7.7	6.7
TRUELINE	6.0	6.7	7.7	4.7	7.0	89.3	97.7	99.3	105.3	112.0	6.3	6.0	6.3	7.3	6.7	7.7	6.7
PUTTER	5.0	6.0	7.3	5.7	6.7	90.3	96.7	98.3	100.3	107.3	7.3	6.3	7.0	6.7	5.7	6.7	6.6
VIPER	6.0	7.7	7.3	3.7	7.7	89.0	99.7	102.3	105.7	113.0	6.0	6.3	6.3	7.7	6.0	7.3	6.6
PENNCROSS	5.3	6.3	6.0	5.3	6.0	92.7	94.7	97.7	98.3	106.0	5.0	5.0	5.7	6.7	7.3	7.0	6.1
LSD VALUE	1.2	1.3	1.0	2.1	0.9	10.5	10.7	-	11.4	-	1.8	0.8	1.2	1.0	1.5	2.0	0.4
C.V. (%)	10.6	8.8	7.2	19.1	6.8	3.9	4.2	4.9	3.8	5.9	12.9	7.4	8.5	7.1	10.6	8.8	3.7

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 7.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT WEST LAFAYETTE, IN (PURDUE UNIVERSITY KAMPEN COURSE) 1/
 1998 DATA

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

NAME	GENETIC COLOR	LEAF TEXTURE	STIMPMETER READINGS SEPTEMBER	PERCENT ESTABLISHMENT RATINGS					QUALITY RATINGS								
				NOV 97	MAR 98	APR 98	MAY 98	JUN 98	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	MEAN
PENN A-1	7.7	7.3	104.3	58.3	66.7	85.0	90.0	98.7	3.7	4.0	6.7	7.3	7.0	7.3	8.0	5.7	6.2
PENN A-4	7.7	8.0	100.3	58.3	70.0	88.3	93.3	98.7	3.7	4.0	7.0	7.0	7.0	6.3	8.0	6.0	6.1
GRAND PRIX (LCB-103)	6.0	7.0	105.3	68.3	73.3	88.3	94.3	98.3	4.0	4.7	6.3	7.0	6.3	6.3	7.3	5.7	6.0
PENN G-1	7.0	7.0	99.3	55.0	61.7	86.7	91.7	98.3	3.3	4.0	6.3	6.7	7.0	7.0	7.3	6.0	6.0
IMPERIAL	5.7	7.0	105.0	56.7	71.7	90.0	91.7	98.3	3.7	4.0	7.0	6.7	6.7	6.7	7.0	5.3	5.9
PENN G-6	6.0	7.0	104.7	63.3	66.7	88.3	96.0	98.3	4.0	4.7	6.7	6.7	6.3	6.7	7.0	5.3	5.9
CENTURY	6.3	8.0	101.7	56.7	68.3	88.3	90.0	98.0	4.0	4.3	6.7	6.7	6.3	6.7	7.0	5.0	5.8
CRENSHAW	7.7	6.3	106.0	61.7	70.0	86.7	91.7	98.0	4.0	4.0	5.7	6.7	6.7	6.3	7.0	5.7	5.8
L-93	7.3	6.7	104.3	60.0	66.7	83.3	95.0	99.0	3.7	4.7	6.3	6.7	6.3	6.7	7.0	5.3	5.8
TRUELINE	6.3	6.0	106.0	56.7	63.3	86.7	92.7	98.0	3.7	4.7	6.3	6.7	6.3	6.3	7.0	5.0	5.8
BACKSPIN	5.7	7.0	104.0	56.7	65.0	85.0	90.0	98.3	3.7	4.3	6.7	6.3	6.0	6.3	6.3	4.7	5.5
PENNCROSS	5.7	6.0	106.7	60.0	68.3	86.7	91.7	98.0	4.0	4.3	5.3	5.3	6.3	6.3	6.7	5.3	5.5
SR 1119	7.0	7.0	105.3	56.7	60.0	85.0	93.3	98.7	3.7	4.3	6.0	6.3	6.3	5.7	7.0	5.0	5.5
VIPER	7.0	6.3	103.0	58.3	65.0	83.3	91.7	98.3	3.7	4.3	6.3	6.7	5.7	5.3	6.7	5.0	5.5
CATO	7.0	6.3	103.3	58.3	68.3	85.0	93.3	98.0	3.3	4.0	6.3	6.0	6.0	6.0	6.7	5.0	5.4
PROVIDENCE	6.3	7.0	107.3	53.3	63.3	81.7	91.7	98.7	4.0	4.0	6.0	6.3	5.7	5.7	6.3	5.3	5.4
PUTTER	6.0	6.0	107.0	68.3	71.7	86.7	95.0	98.0	3.7	4.3	6.0	5.7	5.7	5.7	6.0	5.0	5.3
SR 1020	6.7	6.0	108.7	51.7	58.3	81.7	88.3	98.0	3.0	3.7	5.7	5.7	6.0	5.3	6.3	5.7	5.2
LSD VALUE	1.1	0.6	-	11.8	14.8	9.7	8.6	0.9	1.3	-	1.0	1.4	1.1	2.6	1.2	0.9	0.8
C.V. (%)	9.4	5.8	4.6	9.2	8.9	4.2	3.4	0.4	12.5	13.2	8.1	9.8	8.3	14.5	8.6	8.1	6.5

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.

TABLE 8.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT FLORENCE, KY (LASSING POINTE G. C.) 1/
 1998 DATA

TURFGRASS QUALITY AND OTHER RATINGS 1-9; 9=BEST
 SNOW MOLD RATED THE NUMBER CENTERS PER PLOT 2/

NAME	GENETIC COLOR	LEAF TEXTURE	PERCENT	WINTER COLOR	ESTABLISHMENT FALL	SNOW MOLD	PERCENT	QUALITY RATINGS										
			LIVING COVER SPRING				BROWN PATCH	UNIFORMITY	RATINGS	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	MEAN
PENN A-4	8.0	8.0	99.0	8.0	86.3	2.3	1.7	7.7	8.3	7.0	8.0	7.0	7.7	7.0	7.7	7.3	8.3	7.5
BACKSPIN	6.7	8.0	96.3	5.0	79.0	2.0	2.0	5.7	7.0	6.3	7.0	6.7	8.7	5.7	6.7	7.0	7.7	7.0
CENTURY	6.7	8.0	95.7	3.3	73.3	1.7	6.3	7.3	8.0	7.0	7.3	7.0	8.3	5.7	7.7	5.7	7.3	7.0
PENN G-1	8.0	7.3	98.3	6.0	92.0	1.3	0.3	7.0	7.7	7.0	8.0	6.0	8.3	6.0	6.7	6.3	7.7	7.0
PENN G-6	7.0	7.0	97.0	7.3	81.3	3.0	2.0	7.0	7.7	7.0	7.7	5.0	8.0	6.3	7.3	7.3	7.7	7.0
SR 1119	8.0	7.3	97.0	7.3	77.7	1.7	1.0	6.3	7.3	7.0	8.0	6.0	7.3	5.7	7.3	8.0	7.0	7.0
L-93	7.3	7.3	96.7	6.3	88.7	3.3	2.7	5.3	6.7	6.0	7.7	6.0	7.0	6.0	7.3	7.3	7.0	6.8
CRENSHAW	7.7	7.7	95.7	8.7	74.3	3.0	3.3	5.3	6.0	5.7	7.0	4.3	8.0	6.7	7.3	7.3	7.3	6.7
GRAND PRIX (ICB-103)	6.3	8.0	98.3	4.7	89.3	1.3	0.0	6.3	6.3	7.0	6.3	6.3	7.0	6.0	6.7	6.7	7.3	6.7
PENN A-1	6.7	7.7	94.3	7.3	63.3	15.7	4.7	6.0	6.7	5.3	7.0	4.7	7.7	6.7	7.3	7.0	8.0	6.7
CATO	8.0	6.7	97.0	6.7	82.7	18.0	12.0	6.0	7.0	7.0	7.0	5.0	7.3	6.0	6.7	6.7	6.7	6.5
IMPERIAL	7.0	8.0	99.0	5.3	91.7	0.7	0.3	6.7	7.0	6.0	8.0	5.7	7.3	5.0	6.7	6.3	7.0	6.5
VIPER	8.0	7.3	97.3	8.0	91.7	0.7	1.3	4.7	6.3	5.7	7.0	4.7	6.0	6.3	7.0	7.7	7.3	6.5
PUTTER	6.3	6.7	99.0	4.7	96.3	3.7	2.7	6.0	5.0	6.7	5.7	4.7	6.7	6.3	6.7	7.3	7.3	6.4
SR 1020	7.0	7.0	98.7	6.0	90.0	6.7	4.3	7.0	5.7	7.0	6.3	4.3	6.3	5.7	6.7	7.7	7.3	6.4
TRUELINE	7.0	7.0	98.0	7.3	91.7	11.0	6.0	5.0	6.0	5.7	5.7	4.7	6.3	6.3	7.0	7.3	6.7	6.2
PROVIDENCE	7.3	7.0	98.7	6.0	96.3	3.0	2.7	6.0	6.0	5.7	7.0	5.7	6.3	4.3	5.7	6.7	7.0	6.0
PENNCROSS	6.7	5.7	99.0	5.0	85.0	5.3	5.7	5.0	5.7	5.7	5.7	5.3	6.3	5.0	5.0	6.3	6.7	5.8
LSD VALUE	0.7	1.0	3.7	1.9	20.7	6.6	10.3	1.0	0.8	0.7	0.5	1.1	0.8	2.3	2.1	1.7	2.4	0.8
C.V. (%)	5.8	7.9	1.8	18.2	11.9	84.2	126.8	9.8	7.9	7.2	5.0	12.1	7.0	15.8	13.0	10.9	11.2	6.1

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 9.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT ST. CHARLES, MO (THE MISSOURI BLUFFS G. C.) 1/
 1998 DATA

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

NAME	SEEDLING VIGOR	PERCENT LIVING COVER FALL (97)	STIMPMETER READINGS				QUALITY RATINGS								
			JULY	AUGUST	SEPTEMBER	OCTOBER	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	MEAN
PENN A-4	5.7	91.7	91.7	93.7	110.7	107.7	3.7	6.3	7.0	8.0	7.7	8.7	7.0	5.7	6.8
CENTURY	5.7	90.0	80.0	79.7	104.7	100.7	4.0	6.3	7.0	8.0	8.0	8.3	6.7	4.7	6.6
IMPERIAL	6.0	92.7	81.0	86.3	107.0	107.3	4.3	6.7	7.0	8.0	7.3	8.0	7.0	4.0	6.5
PENN G-1	6.3	94.3	85.7	87.0	111.7	100.3	4.3	5.7	6.3	8.0	7.0	8.3	7.0	5.0	6.5
BACKSPIN	4.7	91.7	82.3	84.3	102.7	103.0	4.3	6.7	7.0	7.3	7.3	8.0	6.0	4.0	6.3
PENN A-1	3.7	78.3	86.0	97.7	111.3	104.0	3.7	5.7	6.0	7.7	7.7	8.3	6.3	5.3	6.3
PENN G-6	6.0	90.0	86.3	90.0	114.7	112.7	4.3	6.0	6.0	7.0	6.7	8.3	7.0	5.3	6.3
GRAND PRIX (LCB-103)	5.7	88.3	84.3	93.0	112.7	113.3	3.7	5.3	6.0	7.3	7.0	7.3	6.7	5.3	6.1
SR 1119	6.3	91.7	87.3	91.3	108.7	102.7	4.0	6.0	6.3	7.0	6.7	7.3	5.7	4.3	5.9
L-93	5.0	83.3	89.3	91.7	109.7	104.0	3.3	6.0	5.3	6.3	7.0	7.7	6.3	4.7	5.8
SR 1020	5.3	91.0	85.3	88.3	107.0	105.7	4.3	5.7	5.7	6.7	6.0	7.3	5.7	4.7	5.8
TRUELINE	5.3	86.7	84.3	86.7	111.7	104.0	4.0	6.0	5.3	7.0	6.0	7.0	6.3	4.3	5.8
CATO	5.3	85.0	93.7	94.7	115.7	120.0	3.3	6.0	5.0	7.0	6.7	7.0	6.7	4.0	5.7
CRENSHAW	5.3	90.0	93.7	100.3	118.7	112.3	3.7	5.0	5.0	7.3	6.7	7.3	6.3	4.0	5.7
PUTTER	5.3	93.3	83.3	87.3	113.0	112.0	4.0	5.3	5.3	7.0	6.7	6.7	6.0	4.3	5.7
VIPER	5.7	92.7	88.3	89.7	108.7	106.3	4.0	5.7	5.7	6.7	6.0	6.7	5.7	3.7	5.5
PROVIDENCE	5.3	88.3	90.3	93.0	109.7	117.0	3.7	5.3	4.7	6.0	5.7	7.0	6.3	4.3	5.4
PENNCROSS	7.0	94.7	81.3	80.3	108.3	103.3	4.3	5.3	5.0	5.0	6.0	5.3	5.0	3.0	4.9
LSD VALUE	2.2	16.3	-	28.2	-	-	-	1.4	1.1	1.0	0.9	0.9	1.4	0.9	0.5
C.V. (%)	16.9	7.0	12.3	10.6	8.9	10.2	17.7	10.7	10.7	8.3	7.7	7.6	10.5	11.7	5.4

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 10.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT RYE, NY (WESTCHESTER COUNTRY CLUB) 1/
 1998 DATA

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

NAME	GENETIC COLOR	GREENUP	LEAF TEXTURE	SEEDLING VIGOR	DENSITY RATINGS			DOLLAR SPOT	QUALITY RATINGS							MEAN
					SPRING	SUMMER	FALL		APR	MAY	JUN	JUL	AUG	SEP	NOV	
PENN A-4	7.0	7.3	9.0	7.3	7.7	9.0	6.0	7.3	7.7	8.7	9.0	8.0	7.7	5.7	8.3	7.9
CENTURY	4.0	4.7	8.7	7.0	6.3	8.0	6.3	5.7	6.0	8.0	8.0	7.7	7.3	6.0	6.7	7.1
PENN A-1	6.7	5.0	8.0	4.0	5.3	8.0	5.0	8.0	6.7	8.0	8.0	7.7	7.0	5.3	6.7	7.0
PENN G-1	6.3	5.7	7.7	7.0	6.7	7.7	5.7	8.0	7.0	8.0	7.7	7.3	6.7	5.7	6.7	7.0
SR 1119	7.3	4.3	6.7	5.0	6.0	7.0	4.3	8.3	7.0	9.0	8.0	6.3	5.7	5.0	5.7	6.7
L-93	7.0	4.3	6.3	5.0	5.3	6.7	5.0	8.7	5.7	8.0	7.0	6.7	6.7	5.3	7.0	6.6
GRAND PRIX (LCB-103)	3.7	5.3	7.3	8.0	5.3	7.0	5.0	7.7	6.0	6.7	7.0	7.0	6.3	5.0	5.7	6.2
CRENSHAW	6.0	3.7	6.0	6.3	5.0	6.3	4.7	7.0	5.7	8.0	6.7	6.0	6.0	5.0	5.3	6.1
PENN G-6	5.7	5.7	6.7	6.7	7.0	7.0	5.0	8.0	6.3	7.7	6.7	6.0	6.3	4.7	5.3	6.1
BACKSPIN	2.7	3.7	7.7	5.3	4.7	7.3	5.3	6.3	5.0	7.3	7.3	7.3	5.7	4.3	4.7	6.0
IMPERIAL	3.7	3.7	8.0	7.7	6.0	7.3	4.0	6.3	5.7	7.0	7.3	6.3	5.7	4.3	4.7	5.9
CATO	6.7	3.0	6.7	4.7	5.0	6.7	3.7	7.7	4.3	7.7	7.0	6.3	5.0	4.3	5.3	5.7
PROVIDENCE	5.7	4.3	5.7	6.7	5.0	6.0	4.0	8.7	6.3	7.3	6.0	6.0	4.7	4.0	5.0	5.6
SR 1020	5.0	3.3	6.7	4.3	4.7	6.7	4.7	7.7	4.7	6.7	6.3	6.0	5.0	5.0	5.7	5.6
VIPER	6.3	3.0	6.0	6.7	7.0	6.3	3.3	8.0	6.7	7.7	6.0	5.0	4.0	3.7	4.3	5.3
TRUELINE	5.0	4.7	5.7	8.0	5.0	5.7	3.3	7.7	6.3	6.7	5.3	5.0	4.0	4.0	4.0	5.0
PUTTER	4.7	2.7	5.0	7.3	3.3	5.0	2.7	8.3	4.7	5.3	5.0	4.3	3.7	3.0	4.0	4.3
PENNCROSS	2.0	3.0	3.0	6.3	2.3	4.0	1.0	8.7	3.3	5.7	3.3	3.3	2.0	2.0	2.0	3.1
LSD VALUE	1.0	1.9	0.9	1.7	1.4	0.9	1.1	0.9	1.0	1.2	0.9	1.0	0.7	1.0	0.9	0.5
C.V. (%)	11.9	24.7	8.4	15.9	16.3	8.7	16.1	7.0	11.3	9.8	8.5	10.3	9.0	14.1	10.9	5.5

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.

TABLE 11.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT DALLAS, TX (BENT TREE COUNTRY CLUB) 1/
 1998 DATA

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

NAME	GENETIC COLOR	LEAF TEXTURE	QUALITY RATINGS												MEAN
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
PENN A-4	7.7	7.0	7.0	7.3	6.3	6.7	7.7	8.7	8.0	8.0	7.0	7.0	7.0	6.7	7.3
PENN G-1	6.3	6.0	6.7	7.7	7.3	5.3	7.7	8.3	7.0	7.3	7.0	7.0	7.0	7.7	7.2
CENTIURY	6.0	7.0	7.0	7.7	7.3	6.3	8.0	9.0	7.0	7.7	5.3	7.3	6.3	6.7	7.1
GRAND PRIX (LCB-103)	5.3	4.7	7.3	7.7	7.3	5.0	8.0	8.3	7.0	7.7	7.3	7.0	6.7	6.3	7.1
SR 1020	6.0	6.7	7.3	7.7	6.3	5.3	7.0	8.0	7.0	7.3	6.7	7.0	7.7	7.7	7.1
CRENSHAW	7.3	6.3	6.7	7.3	6.3	4.7	8.3	8.0	7.0	7.3	6.3	7.0	7.7	7.3	7.0
SR 1119	6.3	6.3	7.7	7.7	6.3	6.0	7.7	8.0	6.7	7.0	6.7	6.3	7.3	6.7	7.0
IMPERIAL	5.7	5.7	6.0	8.0	7.3	6.0	8.0	8.7	7.3	7.7	6.3	7.0	4.0	6.3	6.9
PENN A-1	6.3	6.3	7.0	7.7	6.3	5.7	7.7	8.7	6.7	7.3	6.0	6.3	7.3	6.7	6.9
PENN G-6	6.0	5.7	6.7	7.0	6.7	5.0	7.7	8.3	6.3	7.3	6.7	7.3	7.3	7.0	6.9
CATO	6.7	6.3	7.3	7.3	6.7	5.7	8.0	8.0	7.0	7.3	6.0	7.0	6.0	5.7	6.8
VIPER	6.3	6.3	7.0	7.7	7.0	6.0	7.3	8.0	6.7	7.0	5.7	6.0	6.7	6.0	6.8
L-93	7.0	6.3	6.7	7.7	6.3	5.7	7.7	8.0	6.7	7.0	5.3	7.0	6.0	6.0	6.7
PROVIDENCE	6.7	5.3	7.0	7.3	6.7	5.3	7.7	8.0	6.0	7.3	6.7	6.7	5.7	5.7	6.7
BACKSPIN	5.7	5.7	7.0	7.3	7.0	4.7	7.7	8.3	6.0	7.3	5.3	6.0	5.7	7.3	6.6
TRUELINE	5.7	5.3	6.3	7.0	6.3	5.3	7.7	8.0	5.3	7.0	6.7	7.0	6.7	6.3	6.6
PUTTER	5.0	5.3	6.7	8.0	7.3	4.0	7.3	8.0	5.3	7.0	5.7	7.3	5.3	5.0	6.4
PENNCROSS	4.3	4.7	7.0	7.7	7.3	3.0	7.3	6.7	4.0	7.0	5.3	7.3	5.0	5.3	6.1
LSD VALUE	1.7	2.6	1.4	-	2.0	2.8	-	0.7	1.8	1.2	1.7	1.9	2.3	0.8	0.4
C.V. (%)	14.3	17.2	8.2	9.5	10.6	22.2	9.0	5.1	14.6	6.1	12.7	10.1	17.7	7.8	3.5

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.

TABLE 12.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT VIENNA, VA (WESTWOOD G. C.) 1/
 1998 DATA

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

NAME	GENETIC COLOR	LEAF TEXTURE	STIMPMETER READINGS					QUALITY RATINGS							
			MAY	JUNE	SEPTEMBER	OCTOBER	DECEMBER	APR	MAY	JUN	AUG	SEP	OCT	NOV	MEAN
PENN A-4	7.0	7.7	85.7	98.0	106.7	111.3	108.7	7.0	7.7	8.0	7.7	7.0	7.3	7.3	7.4
CENTURY	5.7	7.0	88.0	101.3	105.7	112.7	114.3	6.7	7.7	7.3	7.0	6.3	7.3	6.3	7.0
PENN A-1	6.7	7.7	89.0	100.5	108.5	115.5	111.5	6.7	7.0	7.3	6.7	7.0	7.0	7.0	7.0
PENN G-1	6.7	6.7	87.7	97.7	106.0	113.3	109.0	6.3	7.0	6.7	7.0	7.7	7.3	6.7	7.0
PENN G-6	6.3	7.0	88.7	101.0	106.0	110.7	111.7	6.7	7.3	7.0	7.0	7.0	7.3	7.0	7.0
CATO	6.0	7.0	88.3	99.3	106.0	116.0	113.7	6.7	7.0	7.0	6.7	6.7	7.0	7.0	6.9
CRENSHAW	6.0	6.3	86.3	101.0	110.3	114.3	113.0	6.7	6.3	7.0	6.7	7.3	7.3	6.0	6.8
L-93	6.0	6.7	85.7	102.0	107.7	112.3	115.0	6.7	6.7	7.0	6.7	6.7	7.0	6.3	6.7
IMPERIAL	6.0	7.3	85.3	100.7	110.3	113.0	113.3	6.7	7.0	7.0	6.3	6.3	6.7	6.3	6.6
PROVIDENCE	6.3	7.0	84.7	99.3	107.3	112.0	112.3	6.3	7.3	6.7	6.0	6.3	7.0	6.7	6.6
SR 1119	5.5	7.0	88.3	102.3	106.3	110.5	107.5	7.0	7.0	6.3	6.3	6.3	7.0	6.0	6.6
BACKSPIN	6.0	6.3	90.0	100.0	108.3	113.7	113.0	5.3	7.0	6.7	6.7	6.7	6.7	6.3	6.5
GRAND PRIX (LCB-103)	6.7	6.7	90.0	96.7	106.0	112.7	111.3	5.7	6.7	6.3	6.0	7.0	7.0	6.7	6.5
VIPER	5.7	7.0	88.7	100.0	110.0	113.7	113.0	6.3	7.0	6.0	6.0	6.7	7.0	6.7	6.5
SR 1020	6.0	7.0	88.0	100.0	110.3	111.7	113.0	6.0	6.3	6.3	6.0	6.3	7.0	6.7	6.4
PUTTER	6.3	6.7	88.7	98.3	110.0	114.7	115.3	5.7	6.0	6.0	5.0	6.3	7.0	7.0	6.1
TRUELINE	5.3	6.3	89.3	95.3	108.3	112.7	112.3	5.3	6.7	6.0	5.7	6.0	6.7	6.3	6.1
PENNCROSS	5.0	5.7	88.0	97.0	112.0	112.3	115.3	5.7	5.3	5.0	5.0	5.3	5.7	5.7	5.4
LSD VALUE	2.1	1.2	-	10.6	8.7	-	-	1.0	1.0	0.5	0.9	0.8	-	2.0	0.4
C.V. (%)	12.8	8.4	5.0	3.5	2.9	3.3	3.7	8.3	8.1	5.1	8.2	6.8	11.3	10.5	4.2

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 13.

MEAN TURFGRASS QUALITY AND OTHER RATINGS OF BENTGRASS CULTIVARS
 IN THE 1997 USGA/GCSAA/NTEP ON-SITE BENTGRASS TEST
 AT SNOQUALMIE, WA (SNOQUAIMIE RIDGE C. C.) 1/
 1998 DATA

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

NAME	GENETIC COLOR	LEAF TEXTURE	SEEDLING VIGOR	DENSITY RATINGS		WINTER COLOR	QUALITY RATINGS							
				SUMMER	FALL		JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
PENN A-4	6.0	7.0	6.0	7.7	8.0	6.0	4.7	6.0	6.7	5.3	8.3	7.0	5.0	6.1
CATO	6.0	7.3	5.0	7.0	8.0	4.3	4.3	7.7	6.0	5.7	6.7	6.0	5.0	5.9
IMPERIAL	5.3	7.0	7.7	8.3	8.0	4.3	4.7	6.3	6.0	6.3	6.3	5.7	5.0	5.8
PENN A-1	5.3	7.0	6.7	7.7	7.7	4.7	4.3	5.7	6.0	6.0	6.7	7.0	5.0	5.8
PENN G-1	6.0	7.0	6.3	7.7	7.7	5.0	4.3	5.7	6.0	6.3	6.7	6.3	5.0	5.8
SR 1020	6.0	7.0	6.0	7.0	7.3	5.0	4.3	6.0	6.0	5.7	6.7	6.3	5.3	5.8
GRAND PRIX (LCB-103)	5.3	6.7	7.0	7.3	7.3	5.0	4.3	5.0	5.7	5.7	7.0	6.7	5.0	5.6
VIPER	6.7	7.0	5.7	8.0	7.7	4.0	4.3	7.0	6.3	5.3	6.0	6.0	4.3	5.6
CENTURY	6.0	7.3	4.0	5.7	8.0	5.7	3.3	6.0	6.0	6.3	6.0	5.7	5.0	5.5
L-93	6.7	7.0	5.0	6.7	7.7	4.0	4.0	7.0	6.0	6.0	6.0	4.7	4.7	5.5
PROVIDENCE	6.3	6.7	6.0	7.0	7.0	4.3	4.0	6.7	6.0	6.0	5.3	5.7	5.0	5.5
PUTTER	5.0	6.7	7.0	7.7	7.0	5.0	4.3	5.7	5.7	5.7	5.7	5.7	4.7	5.3
SR 1119	6.3	7.0	5.3	6.7	7.7	4.0	4.0	7.0	6.3	5.7	5.3	4.3	4.7	5.3
TRUELINE	6.0	7.0	7.3	7.7	7.3	4.3	4.3	6.7	5.7	5.3	5.0	5.0	5.0	5.3
PENN G-6	6.0	7.0	5.3	7.0	7.0	3.7	4.0	5.7	5.7	5.7	5.0	5.3	5.0	5.2
CRENSHAW	7.0	7.3	6.0	7.3	8.0	3.3	4.3	6.7	6.0	5.7	5.0	4.3	4.0	5.1
BACKSPIN	5.3	7.0	4.0	5.3	7.7	5.0	3.3	5.0	6.0	5.3	5.0	5.0	5.0	5.0
PENNCROSS	6.3	7.0	7.0	8.0	7.0	3.0	4.7	6.7	6.0	5.7	4.3	4.0	3.0	4.9
LSD VALUE	0.8	0.9	1.3	2.9	0.7	0.7	2.2	0.8	0.9	-	1.2	1.1	0.5	0.6
C.V. (%)	8.0	4.6	13.3	15.9	5.2	10.2	16.7	7.8	5.9	13.2	12.2	11.9	6.3	5.6

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.