

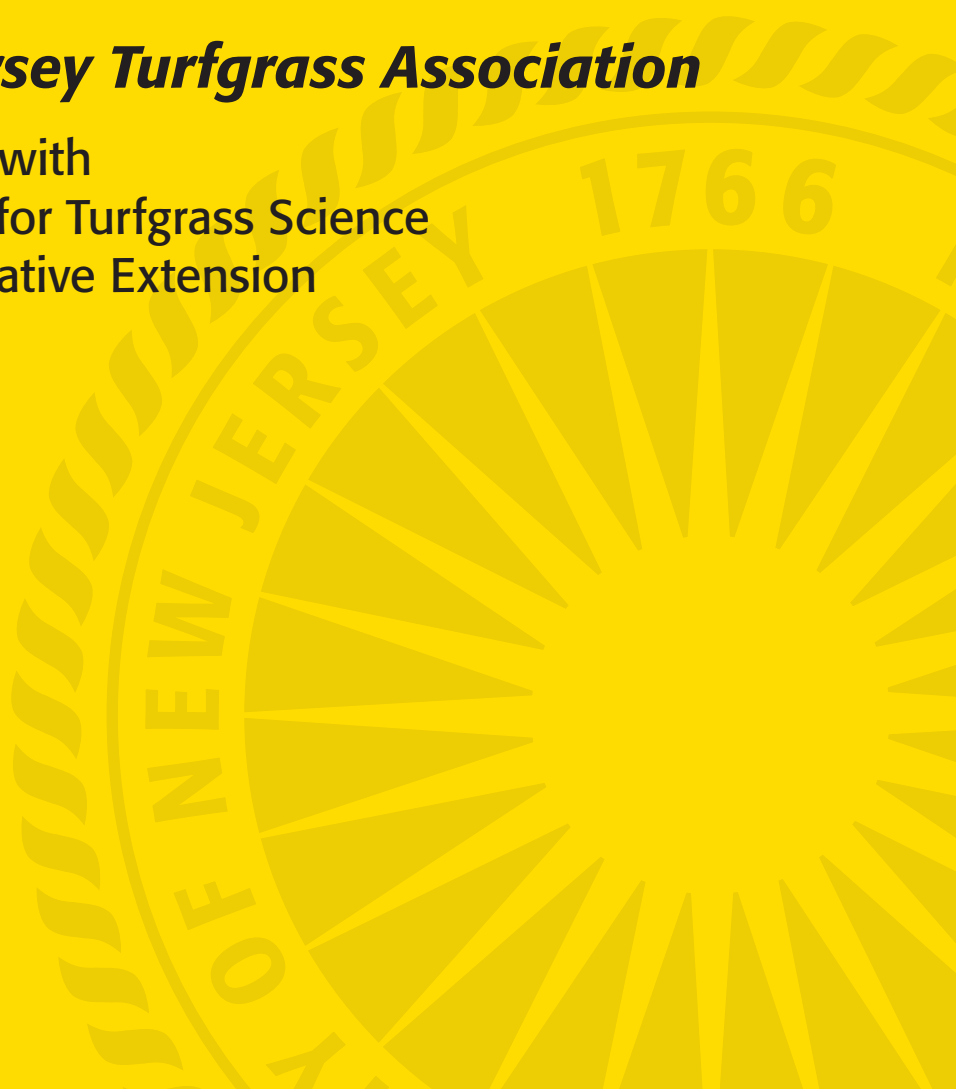
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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. Through this forum, these professionals also reach a more general audience, which includes the public.

This publication includes lecture notes of papers presented at the 2010 GREEN EXPO Turf and Landscape Conference. Publication of these lectures provides a readily available source of information

covering a wide range of topics and includes technical and popular presentations of importance to the turfgrass industry.

This proceedings also includes research papers that contain original research findings and reviews of selected subjects in turfgrass science. These papers are presented primarily to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

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Dr. Ann Brooks Gould, Editor
Dr. Bruce B. Clarke, Coordinator

PERFORMANCE OF FINE FESCUE CULTIVARS AND SELECTIONS IN NEW JERSEY TURF TRIALS

Laura M. Cortese, Dirk A. Smith, Ronald F. Bara, Melissa M. Wilson, Eric N. Weibel,
Stacy A. Bonos, and William A. Meyer¹

The fine fescues (*Festuca* spp.) comprise a group of several species of fine-leaved cool-season turfgrasses that performs well in acidic soils and under infertile or droughty conditions. The fine fescues are also well adapted to moderate levels of shade, which, compared to most cool-season turfgrasses, makes them better suited to low maintenance situations. They can form a dense cover that may persist for years without any maintenance inputs. Fine fescue seeded to the base of trees where light intensity is low and there is competition for water and nutrients usually survive long after other species have disappeared. Under these conditions, fine fescues often out-compete the other cool-season turfgrasses that normally predominate under more favorable levels of light, moisture, and nutrition. In general, fine fescues are not, however, well adapted to wet soil conditions (Murphy, 1996).

Six species of fine fescues are primarily used for turfgrass purposes, three of which are subspecies of *F. rubra*. Strong creeping red (*F. rubra* L. subsp. *rubra*) and slender creeping red fescues [*F. rubra* L. var. *litoralis* Vasey ex Beal] are commonly referred to as creeping red fescue since they both spread by rhizomes. The strong creepers, as the name implies, have more vigorous rhizomes and a more open and aggressive growth habit.

The third subspecies of red fescue, Chewings fescue (*F. rubra* L. subsp. *fallax* (Thuill.) Nyman), is a bunch type grass. The Chewings fescues are usually dense and low growing and, compared to other fine fescues, are better able to tolerate a lower mowing height. Their ability to perform well in areas that have less than optimal growing conditions and to provide a longer-lasting cover if maintenance is reduced or abandoned makes them a popular addi-

tion to home lawn mixes. In general, the Chewings fescues perform best in regions with cooler summer climates such as the maritime (Turgeon, 1980).

Hard fescue (*F. brevilipa* R. Tracey) is another major species used for turf; sheeps (*F. ovina* L.) and blue (*F. glauca* Vill.) fescues play lesser roles. Hard fescues are generally dark green and are known to maintain good color during moderate periods of drought stress. They form a very dense cover and, compared to Chewings fescues, are considered more tolerant of heat, drought, and low fertility. Hard fescues are fairly resistant to disease, even under low maintenance, which makes them well-adapted for use on steep banks for erosion control and in many other low maintenance situations.

Sheeps and blue fescues range in color from various shades of blue or green to a silvery-blue or silvery-green. As a result, they are not generally added to mixtures with other turfgrasses. Their non-aggressive, bunch-type growth habit allows them to be added to wildflower mixes where they make an interesting addition of color, aid in erosion prevention, and do not out-compete the flowers. Their use is also becoming more popular in ornamental landscapes where they are used for the unique and dramatic color contrast they can provide.

Fine fescues can become soft, succulent, and thatchy when heavily fertilized, leaving them more susceptible to diseases and summer heat stress. Ideally, fine fescues shouldn't be fertilized with more than about 1 to 2 lb N/1000 ft² per year. In light of current demands for water conservation and the heightened concern about fertilizer usage, fine fescues are species the turf industry can use in certain situations to address some of these issues.

¹Graduate Assistant, Principal Laboratory Technician, Principal Laboratory Technician, Field Researcher IV, Field Researcher IV, Associate Professor, and Research Professor, respectively, New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey, New Brunswick, NJ 08901-8520.

Many newer cultivars of fine fescue contain a *Neotyphodium* endophyte that improves drought tolerance as well as resistance to many turf insects and some diseases (of added benefit because chemical inputs may be reduced). *Neotyphodium* is a non-pathogenic fungus that grows in the plant within the leaf sheath and crown. The benefits of the endophyte are seldom seen during low stress growing conditions but are often dramatic under stress.

Two other species of fine fescue currently under evaluation for low maintenance situations are tufted hairgrass (*Deschampsia cespitosa* L.) and *Koeleria* sp. Although both of these species tolerate low maintenance under some climatic conditions, they are not yet well adapted to the long, hot, and humid summers of the northeast. Studies continue to improve the potential of these species to become viable, low maintenance turfs in our climate.

Although the Rutgers turfgrass breeding program has improved many of the characteristics desired for a superior fine fescue turf, further work is needed, particularly in the areas of disease and insect resistance. Rutgers continues to cooperate with the National Turfgrass Evaluation Program (NTEP), which evaluates many cultivars, collections, and experimental selections for turf performance across a wide range of geographical locations.

PROCEDURES

Five fine fescue turf trials were conducted at the Rutgers Biology and Pathology Research and Extension Station in Adelphia, NJ (Tables 1 to 4). An additional turf trial was included (Table 5) to evaluate fine fescues as well as other species under extremely low maintenance. All tests consisted of 3 x 5 ft plots. The fine fescues were sown at 3.7 lb/1000 ft²; in the low maintenance test, various species were sown at rates indicative of a low maintenance seeding rate for that species.

Plots were replicated three times in a randomized complete block design. Tests were maintained at different fertility levels and mowing heights depending on the objectives of the test as well as the occurrence of disease or insects. Mowing height and fertilizer inputs of all tests are shown in Table 6. All tests were treated with pre-emergent herbicides and broadleaf weed control. The fine fescue trials (Tables 1 to 4) were irrigated to prevent severe stress and were mowed frequently with reel mowers to avoid exces-

sive accumulation of clippings. After establishment, the low maintenance trial (Table 5) received no additional irrigation other than natural rainfall and was maintained with a rotary mower.

The 2008 Trial (Table 3) includes the 2008 National Fineleaf Fescue Test established in cooperation with the National Turfgrass Evaluation Program (NTEP).

EVALUATION

All tests were visually rated throughout the year on a scale of 1 to 9, where 9 represented the most desirable turf quality. Turf quality is a subjective characteristic that includes density, texture, color, growth habit, damage due to diseases or insects, and overall performance. Trials were rated monthly throughout the growing season for turf quality as well for other characteristics such as disease or live turf. Plots were rated by different evaluators to help minimize personal biases towards a particular trait.

Data for all trials were statistically analyzed using analysis of variance, and means were separated using Fisher's protected least significant difference (LSD) means separation test. Results in Tables 1 to 4 are presented with selections grouped according to species and ranked according to the best overall turf performance (multiple-year quality average). Results of the low maintenance test (Table 5) were not sorted by species and were ranked solely by overall turf quality average so that species trends could be easily seen and individuals that performed differently from similar entries could be identified.

Care should be used when drawing conclusions from some of these trials. First, these tests were grown as monocultures in full sun. These conditions tend to cause different stresses that may not occur under normal conditions. Second, the 2009 test (Table 4) was in its first year of evaluation. Some cultivars perform much differently during establishment than they do after a mature sod has developed.

RESULTS AND DISCUSSION

Turf Quality

As a group, the Chewings fescues were rated most highly for average turf quality, followed closely by the hard and strong creeping fescues (Tables 1

to 3). Chewings fescues RAD-FC10, RAD-FC23, IS-FRC 34, and Rushmore exhibited the highest turf quality. The hard fescue selections IS-FL 40, MG2 Comp, and IS-FL 42 also rated well; SRX 3K, and Scaldis II, however, did not. The top performing strong creeping red fescue selections included IS-FRR 61, OR1, and IS-FRR 55, while Boreal and Aruba had low quality ratings. In general, turf quality for the slender creeping red fescues and sheeps fescues was poor. Of the slender creeping red fescues evaluated, selections SRX 55R and SRX 5500 demonstrated the highest turf quality ratings, while Dawson and Reggae were the poorest performers.

Although improvement in the turf quality of tufted hairgrass and blue fescues continues, these species ranked lower than the others in overall turf quality; ratings for tufted hairgrass varieties SED comp and SLD comp and blue fescue SR 3200 were poor. It is interesting to note that many of the top performers within all species evaluated were new selections and experimental varieties. The ability of these new experimental selections to outperform the commercially available varieties attests to the continued improvements being made in fine fescue breeding.

Wear Tolerance

Fine fescues are not recommended for use in high traffic areas due to very poor wear tolerance and recovery. These grasses do perform well, however, under low maintenance conditions and, compared to other turf species, have many advantageous characteristics such as fine leaf texture, low water and nitrogen requirements, and good tolerance to shade, drought, and poor soil conditions. Improvements in wear tolerance in the fine fescues would increase the utility of these species and provide turf managers with a greater selection of turf species to use.

In the 2007 trial in Table 2, ratings for wear tolerance as well as wear recovery were reported. The hard fescues were best for wear tolerance and recovery, particularly selections Beacon, IS-FL 40, and MG1 Comp; Scaldis and Soil Guard, however, had the lowest ratings for the species. The blue x hard hybrid fescue selection Bighorn GT also demonstrated increased wear tolerance and recovery. Among the Chewings fescues, experimental varieties CW2 Comp, RAD-FC24, CW1 Comp, and IS-FRC 30 rated highest for wear recovery, while these traits for Shadow II, Ambrose, and Columbra II were poor. Again, these results emphasize improvements to the fine fescues as a result of breeding. In general, the

strong creeping red fescues, slender creeping red fescues, and the sheeps and blue fescues as well as tufted hairgrass showed poor wear tolerance and recovery. Within these species, the strong creeping red fescues OS2 Comp and RM Comp had the highest ratings for wear tolerance and recovery, while the strong creeping red fescue Gibraltar and slender creeping red fescue Shoreline showed poor wear tolerance and recovery.

Disease Resistance

Disease resistance within the fescue species can be quite variable. The performance of the entries in the 2008 trial (Table 3) include ratings for pink patch (caused by the fungus *Limonomyces roseipellis*) as well as dollar spot (caused by *Sclerotinia homoeocarpa*). Pink patch normally occurs during the warmer temperatures of late spring or summer. Water-soaked, pink to reddish, circular to irregularly-shaped patches that die rapidly appear in turf affected by this disease. Compared to the creeping red fescues, hard fescues tend to be more resistant to pink patch (Hlubik 1995), as was the case in this trial. Hard fescue selections TH6 Comp and IS-FL42 demonstrated good resistance to pink patch while the resistance of GO-HBF and SRX 3K was poor. Among the strong creeping red fescue entries evaluated for pink patch, IS-FRR60, PSG-5RM, OS1, and Pathfinder were the least diseased, whereas strong creeping red fescues PST-Syn-4MD8, Wendy Jean, and Cindy Lou and slender creeping red fescues Dawson and PST-Syn-4ASEA-SL were highly susceptible. In general, resistance to pink patch for the Chewings fescues was intermediate; ratings for PST-41B-C Bulk and Radar were highest, while the resistance of Silhoutte and IS-FRC30 was poor.

Dollar spot is one of the most common diseases of cool-season turfgrasses and is particularly troublesome in fine fescue (Bonos et al., 2007). As seen in Table 3, the Chewings and hard fescues were the least diseased. In fact, Chewings fescues Rushmore, IS-FRC 30, and IS-FRC 35 and hard fescues Oxford, IS-FL 46, and PST-Syn-4NOR-H had little to no disease. While the strong creeping red fescues as a group tended to be susceptible to dollar spot, several experimental varieties exhibited good disease resistance. Some of these entries included IS-FRR55, PSG-5RM, ASC 245, B6 Comp, and R6 Comp.

The 2009 fine fescue trial (Table 4), in its first year of evaluation, contains a single year average for turf quality as well as ratings for establishment and

Pythium blight. The hard fescues had the highest turf quality ratings, followed by the Chewings fescues. As seen in Table 4, all species established well; the slender and strong creeping red fescues rated most highly.

Pythium has the potential to cause large amounts of damage to turf over short periods of time, and most of the fescues in Table 4 had poor disease resistance. Overall, the hard fescues and the blends rated the most highly; these included hard fescues Beacon and PSG 3TH3-15 and Chewings fescue IS FRC 39. Tufted hairgrass selections PST-Syn-DC8 and SCDES, Chewings fescues 7 Seas and Shadow II, and the blue fescue SR 3210 were highly susceptible to this fungus.

Low Maintenance

Performance under low maintenance is an important characteristic since many home lawns are maintained under these conditions. In addition, there is growing interest in reducing fertilization and irrigation in turfgrass areas for both environmental and economic reasons. Turf quality, wear tolerance, and wear recovery performance of the 2008 low maintenance test is shown in Table 5. This trial was not sorted by species to permit comparison among species as well as to identify the exceptional performance of any individual grass. It should be noted that since these tests received some fertilizer and water during the establishment year, the real effects of low maintenance are not yet evident. If previous trends continue, the performance of many of these entries will decline during the next few years.

As seen in Table 5, the hard fescues demonstrated persistence under harsh conditions and outperformed most of the other species in overall turf quality, wear tolerance, and wear recovery ratings. The advantage hard fescues have over most of the other fine fescue species is better resistance to red thread under very low maintenance. Some of the top performing entries include hard fescues TH6 Comp, Reliant IV, and SR 3150, while Kentucky bluegrass selections Total Eclipse, Boutique, and Blue-Mazing did not perform well under low maintenance conditions. It will be interesting to note the interactions among some of these grasses as the cumulative impact of low maintenance becomes evident and to look not only for trends among the various species, but for outstanding selections within the different spe-

cies. These data will provide breeders the opportunity to improve the performance of each species under low maintenance.

Overall, it is encouraging to see that many of the higher ranking fine fescues within all species are new experimental selections. Although advances in breeding efforts continue, there is still need for considerable improvement in resistance to leaf spot and red thread, resistance to summer patch (particularly in the hard fescues), and increased seed production. One little-studied area that could make a significant impact on the use of fine fescues in a wider array of situations is the improvement of wear tolerance, particularly under drought stress conditions. Breeding efforts at Rutgers continue in an effort to develop high quality turfgrasses with the ability to make a great environmental impact with minimal environmental cost.

ACKNOWLEDGMENTS

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Table 1. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2006 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----				
	2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.
CHEWINGS FESCUE					
1 RAD-FC11	6.3	6.3	6.6	6.5	5.8
2 RAD-FC10	6.2	6.8	6.1	6.3	5.5
3 Carson	5.8	6.6	5.6	6.0	5.0
4 RAD-FCQS	5.8	6.2	5.7	6.1	5.2
5 OC1	5.7	5.7	5.8	6.0	5.4
6 IT	5.7	6.1	5.6	6.0	4.9
7 IS-FRC 26	5.6	5.8	5.7	5.7	5.2
8 IS-FRC 27	5.6	5.9	5.5	5.7	5.2
9 RAD-FCFCYS	5.4	6.2	5.1	5.4	4.7
10 Compass	5.3	5.7	5.6	5.4	4.7
11 Longfellow II	5.2	5.3	5.2	5.2	5.1
12 SR 5130	5.0	6.1	5.0	4.7	4.0
13 Columbra II	4.8	5.8	4.6	4.5	4.4
14 Shadow II	4.8	5.3	4.9	4.8	4.3
15 CHFSHHY	4.7	4.7	4.8	5.1	4.4
16 PST-Syn-4CT	4.6	5.2	4.4	4.7	4.2
17 7 Seas	4.6	4.9	4.8	4.5	4.2
18 PST-4C29 Bulk	4.2	4.9	4.0	4.1	3.6
19 SR 5100	4.1	4.0	3.8	4.2	4.2
HARD FESCUE					
1 IS-FL 40	6.0	5.1	6.2	5.8	6.8
2 Viking	5.6	5.4	5.9	5.2	6.0
3 Stonehenge	5.4	5.6	5.3	4.9	5.7
4 Predator	5.3	5.2	5.4	5.2	5.5
5 SR 3100	5.3	5.4	5.2	5.0	5.4
6 IS-FL 39	5.3	4.5	5.4	5.3	5.8
7 SRX CA396	5.2	5.1	5.4	4.9	5.2
8 SR 3150	5.1	4.7	5.3	4.7	5.5
9 SRX NJU	5.0	4.7	5.2	4.5	5.6
10 Chariot	4.9	4.9	4.9	4.8	5.1

(Continued)

Table 1 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				
	2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.
HARD FESCUE (cont.)					
11 Heron	4.9	5.0	5.0	4.3	5.3
12 Aurora II	4.8	4.4	4.8	4.8	5.3
13 Scaldis II	4.6	4.5	4.4	4.3	5.2
14 EXPHF	4.6	4.8	5.0	4.1	4.4
15 SRX 3K	4.4	4.5	4.3	4.2	4.5
STRONG CREEPING RED FESCUE					
1 OR1	5.7	5.7	5.7	5.9	5.7
2 ZT comp	5.3	5.8	5.4	4.9	5.1
3 IS-FRR 52	5.2	5.2	5.0	5.3	5.2
4 Custer	5.2	5.3	5.1	5.0	5.2
5 RCM	5.1	5.0	5.1	5.3	5.1
6 MYSFRR-30	4.6	5.2	4.9	3.8	4.7
7 RAD-FR4	4.6	5.1	4.8	3.8	4.6
8 RAD-FR12	4.4	5.4	4.1	4.0	4.3
9 SRX CA529	4.4	4.6	4.5	4.1	4.4
10 RAD-FRES	4.4	4.8	4.3	4.1	4.3
11 Epic	4.4	5.4	3.9	4.2	3.8
12 RAD-FRQS	4.3	5.4	4.5	3.7	3.6
13 Tiara	4.3	4.6	4.2	4.1	4.3
14 Lustrous	4.2	4.9	3.9	3.9	4.1
15 SRX CA521	4.1	4.4	4.0	3.7	4.4
16 Gibraltar	4.1	4.4	4.1	3.8	4.1
17 Navigator	4.1	4.6	4.2	3.7	3.9
18 SR 5250	4.1	4.9	4.0	3.5	3.8
19 Camilla	4.0	4.4	4.0	3.4	4.3
20 Aberdeen	4.0	4.7	4.3	2.9	4.0
21 RAD-FR15	4.0	4.8	4.0	3.3	3.8
22 Razor	4.0	4.4	4.0	3.6	3.8
23 RAD-FR14	3.9	4.7	3.9	3.4	3.7
24 Inverness	3.9	4.3	4.1	3.3	3.7
25 Swing	3.8	4.2	3.5	3.5	3.8
26 Polka	3.4	4.2	3.4	3.0	3.0
27 SR 5210	3.3	3.6	3.2	2.9	3.7

(Continued)

Table 1 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				
	2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.
HARD x BLUE FESCUE					
1 SRX 3BHO	5.0	4.4	5.3	4.8	5.5
BLUE x HARD FESCUE					
1 Little Bighorn	3.7	4.4	3.6	3.3	3.4
SLENDER CREEPING RED FESCUE					
1 SRX 55R	4.4	4.8	4.5	4.1	4.0
2 PSG 55QRS	4.3	4.5	4.7	3.8	4.4
3 Seabreeze GT	3.9	4.9	4.1	3.3	3.2
4 Reggae	3.6	4.3	3.2	3.4	3.3
5 Dawson	3.3	3.8	3.7	2.7	3.0
SHEEPS FESCUE					
1 04-SHF	3.7	4.2	3.6	3.5	3.3
2 Azure	3.5	3.3	3.1	3.6	4.1
3 10126	3.2	2.8	2.8	3.6	3.5
BLUE FESCUE					
1 SR 3210	3.1	2.6	3.2	3.3	3.2
2 SR 3200	2.9	2.3	2.7	3.1	3.3
TUFTED HAIRGRASS					
1 SED comp	2.6	3.8	2.2	2.0	2.5
2 SLD comp	2.3	3.3	2.0	1.6	2.2
LSD at 5% =	0.6	0.7	0.9	0.8	0.9

¹9 = best turf quality

Table 2. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2007 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----				Wear ² Aug. 2010	Wear Recovery ³ Aug. 2010
	2008- 2010 Avg.	2008 Avg.	2009 Avg.	2010 Avg.		
CHEWINGS FESCUE						
1 RAD-FC23	6.1	6.1	5.6	6.7	5.0	5.7
2 AM-FRC 26	5.8	5.7	5.6	6.1	4.3	6.0
3 CW2 Comp	5.8	5.6	5.8	5.9	5.7	6.7
4 RAD-FC9	5.7	5.5	5.8	5.8	4.0	5.3
5 RAD-FC24	5.7	5.5	5.5	6.1	4.7	6.3
6 CW1 Comp	5.6	5.5	5.5	5.9	5.0	6.3
7 IS-FRC 30	5.6	5.2	5.1	6.4	5.0	6.3
8 RAD-FC22	5.3	5.2	5.2	5.5	3.7	5.3
9 OC1	5.2	5.2	5.2	5.3	4.3	5.3
10 SR 5130	5.2	5.6	5.2	4.9	3.7	4.3
11 Treazure II	5.2	5.0	5.0	5.4	4.7	6.0
12 7 Seas	5.1	5.4	5.1	4.8	4.0	4.7
13 PST-Syn-4CTE	5.0	5.3	5.0	4.7	4.0	4.0
14 Longfellow II	5.0	5.2	5.0	4.7	4.3	4.3
15 PST-Syn-4CIB	4.9	4.6	4.9	5.3	3.7	5.0
16 Silhouette	4.8	4.8	5.0	4.6	3.0	4.3
17 Northbound	4.8	4.9	4.7	4.8	3.7	3.7
18 AmbrosE	4.7	5.1	4.6	4.3	3.3	3.7
19 Shadow II	4.7	4.9	4.7	4.4	3.0	3.7
20 J-5	4.6	4.5	4.6	4.6	4.0	4.0
21 Columbra II	4.5	4.3	4.6	4.6	3.0	4.0
22 Jamestown II	3.7	3.7	3.9	3.5	3.3	4.3
23 SR 5100	3.5	2.0	3.8	4.9	3.7	5.0
HARD FESCUE						
1 IS-FL 40	6.1	5.7	5.7	7.1	7.0	7.0
2 MG2 Comp	6.0	5.4	5.9	6.7	6.7	5.7
3 Predator	6.0	5.4	5.6	6.8	6.7	7.7
4 EG1 Comp	5.9	5.7	5.4	6.6	7.7	7.3
5 MG4 Comp	5.9	5.5	5.6	6.6	6.7	6.3
6 MG1 Comp	5.8	5.1	5.6	6.8	7.0	7.0
7 MG3 Comp	5.8	5.3	5.6	6.5	6.7	6.0
8 EG2 Comp	5.7	5.1	5.4	6.6	6.3	7.3
9 WB	5.7	5.1	5.4	6.5	6.7	6.7
10 Beacon	5.5	4.8	5.3	6.4	7.3	8.0

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Wear ² Aug. 2010	Wear Recovery ³ Aug. 2010
	2008- 2010 Avg.	2008 Avg.	2009 Avg.	2010 Avg.		
HARD FESCUE (cont.)						
11 IS-FL 42	5.5	4.6	5.4	6.4	6.0	6.0
12 Viking	5.5	4.7	5.4	6.3	6.7	6.3
13 PST-4HES	5.4	5.1	5.4	5.7	6.7	7.3
14 SR 3150	5.4	5.3	5.4	5.6	7.3	7.0
15 Soil Guard	5.4	5.6	4.7	6.0	5.3	6.7
16 Reliant IV	5.4	4.9	5.1	6.0	7.0	6.3
17 SR 3100	5.3	5.1	5.1	5.8	6.3	7.0
18 PST-4NY	5.3	5.0	5.1	5.8	6.7	7.0
19 SRX NJU	5.3	5.1	5.2	5.6	7.0	6.7
20 Ecostar	5.2	5.2	5.0	5.5	6.3	6.0
21 SRX 3K	5.2	5.1	5.1	5.4	6.7	7.0
22 AM-FL39	5.2	4.9	5.1	5.6	6.3	7.3
23 Rescue 911	5.1	5.2	4.7	5.5	7.0	7.0
24 Aurora II	4.9	4.6	4.7	5.5	5.7	6.0
25 Scaldis II	4.4	3.0	4.7	5.6	5.3	6.3
STRONG CREEPING RED FESCUE						
1 IS-FRR 52	5.7	5.4	5.6	6.1	3.7	4.3
2 RM Comp	5.7	5.8	5.4	5.8	4.3	5.3
3 OS2 Comp	5.7	5.5	5.2	6.2	4.3	6.0
4 IS-FRR 51	5.6	5.4	5.5	5.8	3.3	4.3
5 OS4 Comp	5.5	5.6	5.1	5.8	4.0	4.7
6 RAD-FR7	5.5	5.3	5.4	5.7	4.0	4.7
7 OS1 Comp	5.3	5.2	4.9	5.7	2.7	4.0
8 IS-FRR 55	5.2	5.1	4.8	5.8	3.7	3.7
9 CAR Comp	5.2	5.4	4.9	5.2	3.3	4.7
10 RCR Comp	5.1	5.2	4.5	5.4	3.3	4.0
11 Shademaster III	5.1	4.9	4.9	5.4	2.3	3.3
12 McAlpin	5.0	5.4	4.4	5.2	3.0	3.7
13 OS3 Comp	4.9	4.7	4.9	5.3	3.0	4.0
14 SJC Comp	4.8	4.6	4.7	5.2	3.3	3.0
15 RAD-FR21	4.7	5.3	4.1	4.7	2.0	3.3
16 Garnet	4.5	4.8	4.4	4.4	2.0	2.7
17 RAD-FR25	4.5	5.3	3.7	4.5	3.0	4.3
18 Jasper II	4.5	4.8	4.1	4.5	2.7	3.3
19 Shademaster II	4.4	5.1	3.6	4.4	2.7	3.0
20 Audubon	4.4	4.4	4.1	4.6	3.0	4.3

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Wear ² Aug. 2010	Wear Recovery ³ Aug. 2010
	2008- 2010 Avg.	2008 Avg.	2009 Avg.	2010 Avg.		
STRONG CREEPING RED FESCUE (cont.)						
21 SR 5250	4.3	4.5	4.0	4.4	2.7	4.0
22 Contender	4.1	4.5	3.8	4.1	2.3	3.7
23 Aberdeen	4.1	4.6	3.5	4.3	2.3	2.6
24 Razor	4.1	4.7	3.7	3.8	1.7	3.0
25 Gibraltar	4.0	4.1	3.9	4.0	1.7	2.3
26 Crossbow	4.0	5.0	3.2	3.7	2.0	3.0
27 Wendy Jean	3.9	4.4	3.4	4.0	2.0	2.7
28 RAD-FR26	3.9	4.9	3.2	3.6	1.7	2.7
29 Epic	3.9	4.0	3.8	4.0	2.0	2.3
30 Splendor	3.8	4.0	3.3	4.0	2.0	3.3
31 Cindy Lou	3.7	4.2	3.1	3.8	1.7	2.7
32 SR 5210	3.4	3.6	3.2	3.4	1.7	3.0
33 Aruba	3.0	3.0	2.8	3.1	2.7	3.3
HARD X BLUE FESCUE						
1 SRX 3BHO	5.4	5.2	5.1	5.8	5.3	6.3
BLUE X HARD FESCUE						
1 Bighorn GT	4.9	5.1	4.4	5.3	6.0	6.0
2 Little Bighorn	4.3	4.4	3.8	4.8	4.7	5.0
SLENDER CREEPING RED FESCUE						
1 SRX 5500	4.8	4.4	4.5	5.4	4.0	4.0
2 Shoreline	4.3	4.9	4.1	4.1	2.3	2.0
3 Dawson	4.1	3.9	4.0	4.5	3.7	3.7
4 Seabreeze GT	3.8	4.0	3.8	3.8	2.3	2.7
SHEEPS FESCUE						
1 RAD-FO7	4.1	3.7	4.1	4.4	4.0	4.3
2 Azure	3.8	4.1	3.6	3.8	3.0	3.7
BLUE FESCUE						
1 SR 3200	3.9	3.1	4.0	4.5	4.0	4.0
2 SR 3210	3.8	3.2	3.5	4.5	3.7	5.0

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Wear ² Aug. 2010	Wear Recovery ³ Aug. 2010
	2008- 2010 Avg.	2008 Avg.	2009 Avg.	2010 Avg.		
TUFTED HAIRGRASS						
1 BBP+EDD	3.0	2.6	2.2	4.1	4.3	4.0
LSD at 5% =	0.7	0.9	0.8	1.0	1.3	1.5

¹9 = best turf quality

²9 = least wear

³9 = best wear recovery

Table 3. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2008 at Adelphia, NJ. (Includes all entries from the 2008 NTEP Fine Fescue Trial.)

Cultivar or Selection	-----Turf Quality ¹ -----			Pink Patch ² April 2010	Dollar Spot ² July 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.		
CHEWINGS FESCUE					
1 IS-FRC 34	6.2	6.0	6.3	6.0	7.7
2 Rushmore	6.2	5.9	6.4	5.7	9.0
3 IS-FRC 30	6.1	5.9	6.3	3.7	9.0
4 IS-FRC 33	6.1	5.9	6.3	5.7	9.0
5 IS-FRC 33	5.7	5.7	5.7	5.0	8.7
6 PSG 5OC3	5.7	5.6	5.8	5.7	8.7
7 TD1 Comp	5.6	5.8	5.3	5.0	8.7
8 RAD-FC11	5.6	5.9	5.2	5.0	8.3
9 Radar	5.5	5.6	5.4	6.3	7.7
10 RAD-FC16	5.4	5.4	5.5	5.3	8.0
11 TD2 Comp	5.4	5.8	5.0	5.0	8.0
12 Fairmont	5.4	5.5	5.3	5.7	7.7
13 Treazure II	5.2	5.1	5.4	4.0	8.3
14 IS-FRC 35	5.2	4.9	5.4	6.0	9.0
15 SR 5130	5.2	5.3	5.0	5.0	7.3
16 Zodiac	5.1	4.8	5.4	6.0	8.7
17 7 Seas	5.0	5.4	4.7	6.0	6.7
18 Intrigue II	4.9	4.6	5.1	5.3	8.7
19 Columbra II	4.9	5.1	4.6	4.0	7.0
20 PST-4IB-C Bulk	4.8	4.6	5.1	6.3	9.0
21 Lacrosse	4.8	5.0	4.5	4.0	6.0
22 PST-Syn-4TS-C	4.8	4.8	4.8	3.7	7.7
23 4SHR-CH	4.7	4.6	4.8	4.7	9.0
24 PST-Syn-4C30-C	4.7	4.6	4.7	5.0	8.0
25 Longfellow II	4.7	5.0	4.4	4.7	6.7
26 Silhouette	4.6	4.9	4.4	3.0	7.3
27 Ambassador	4.6	4.9	4.2	6.0	6.0
28 PST-4CSD	4.6	4.3	4.8	4.7	9.0
29 Ambrose	4.5	4.6	4.4	4.0	8.7
30 Magic Wand	4.5	4.9	4.1	4.0	6.0
31 SR 5100	4.2	4.2	4.1	4.0	8.3
32 Cascade	4.1	4.3	4.0	5.0	8.7
33 SRX 5SDP2	4.0	4.0	4.0	5.0	7.7
34 OC1	3.8	4.3	3.2	4.0	3.3

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----			Pink Patch ² April 2010	Dollar Spot ² July 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.		
HARD FESCUE					
1 IS-FL 42	6.2	6.1	6.2	8.0	8.3
2 IS-FL 45	6.1	6.0	6.3	7.0	8.0
3 TH5 Comp	5.9	5.9	5.8	7.3	7.3
4 MN-HD1	5.8	5.6	6.0	6.0	8.0
5 IS-FL 46	5.7	5.5	5.9	7.7	9.0
6 TH6 Comp	5.7	6.1	5.3	8.3	6.0
7 Predator	5.7	5.9	5.5	6.3	8.0
8 Reliant IV	5.6	5.4	5.7	6.3	8.7
9 NC-HFI	5.5	5.5	5.6	5.7	8.0
10 TH3 Comp	5.5	6.0	5.1	7.3	6.3
11 Lucy	5.5	5.6	5.5	7.0	8.0
12 TH4 Comp	5.5	5.2	5.7	6.7	7.0
13 Gotham	5.4	5.6	5.2	7.0	7.0
14 Beacon	5.4	5.4	5.4	6.3	7.3
15 S2S	5.4	5.8	5.0	6.0	6.7
16 PST-4HES	5.4	5.3	5.4	5.3	7.7
17 Matterhorn	5.4	5.3	5.4	7.0	8.0
18 WB	5.4	5.6	5.1	6.3	6.7
19 Spartan II	5.3	5.2	5.4	6.0	7.7
20 Oxford	5.3	5.2	5.5	7.0	9.0
21 SR 3150	5.2	5.0	5.3	7.7	7.7
22 Berkshire	5.2	5.2	5.1	5.3	7.0
23 IS-FL-47	5.1	4.9	5.3	6.3	8.3
24 SR 3100	5.0	4.9	5.0	6.0	8.3
25 Eureka II	4.6	4.4	4.9	6.3	8.3
26 AHF-116	4.5	4.3	4.6	5.0	8.7
27 SRX 3K	4.4	4.5	4.3	4.3	6.7
28 Spartan	4.3	4.4	4.2	6.7	7.0
29 PST-Syn-4NOR-H	4.2	4.3	4.0	6.3	9.0
30 GO-HBF	4.0	5.0	3.0	3.3	5.7
31 Scaldis II	2.0	1.5	2.6	4.7	8.0

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----			Pink Patch ² April 2010	Dollar Spot ² July 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.		
STRONG CREEPING RED FESCUE					
1 IS-FRR 61	6.1	5.8	6.4	6.7	8.7
2 IS-FRR 55	5.8	5.4	6.3	5.0	9.0
3 IS-FRR 60	5.7	5.4	5.9	7.0	8.7
4 PSG-5RM	5.6	5.4	5.8	6.7	9.0
5 ASC 245	5.6	5.7	5.5	5.0	9.0
6 OS2	5.4	5.4	5.3	6.7	5.3
7 B6 Comp	5.4	5.3	5.4	5.3	9.0
8 R6 Comp	5.3	5.3	5.3	6.3	9.0
9 OS1	5.2	5.2	5.2	6.7	6.7
10 Custer	5.1	4.8	5.4	4.3	8.7
11 PST-Syn-4OR8	5.0	5.1	5.0	4.7	5.3
12 Navigator II	4.9	5.0	4.8	5.7	5.7
13 IS-FRR 62	4.9	5.5	4.3	5.3	3.7
14 PST-Syn-4MD8	4.7	5.2	4.1	3.7	4.3
15 Shademaster III	4.6	4.9	4.3	6.3	7.3
16 PST-8000	4.3	5.1	3.5	5.3	2.3
17 Jasper II	4.1	4.9	3.4	5.3	2.7
18 Garnet	4.1	4.9	3.2	4.7	1.7
19 4CRBL-08	4.0	4.0	4.0	6.0	6.0
20 Lustrous	3.9	4.4	3.4	5.0	4.0
21 Wendy Jean	3.8	4.2	3.5	3.7	4.0
22 Cardinal	3.8	4.5	3.1	4.3	2.3
23 Contender	3.8	4.3	3.3	6.0	3.0
24 SR 5250	3.8	4.6	3.1	5.7	2.0
25 Pathfinder	3.8	4.0	3.6	6.7	3.3
26 Razor	3.8	4.5	3.0	5.3	2.3
27 Cindy Lou	3.8	4.4	3.1	3.7	4.0
28 Epic	3.7	4.5	2.9	6.0	1.7
29 RAD-FR27	3.6	4.7	2.6	4.0	1.7
30 Bargena III	3.6	3.9	3.3	5.3	4.7
31 Aberdeen	3.5	3.9	3.1	5.3	2.3
32 ACR10-08	3.5	4.1	2.9	3.7	2.7
33 4DEN-CR	3.5	4.2	2.7	4.3	2.0
34 GO-ABH	3.4	4.2	2.6	4.3	1.7
35 Gibraltar	3.4	3.9	2.9	5.7	1.7

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----			Pink Patch ² April 2010	Dollar Spot ² July 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.		
STRONG CREEPING RED FESCUE (cont.)					
36 SR 5210	3.3	3.5	3.0	5.0	5.0
37 Boreal	2.9	2.9	2.9	6.0	5.3
SLENDER CREEPING RED FESCUE					
1 PST-Syn-4SEA-SL	4.3	4.8	3.8	3.7	4.0
2 GO-ABC	4.2	4.7	3.7	4.7	5.7
3 Shoreline	4.1	4.6	3.6	5.3	4.0
4 Dawson	3.2	2.9	3.4	3.7	3.0
BLUE x HARD FESCUE					
1 Bighorn	3.9	4.0	3.7	6.0	5.0
BLUE FESCUE					
1 SR 3210	2.6	2.6	2.6	5.0	6.3
2 SR 3200	2.4	2.1	2.7	4.3	5.0
UNKNOWN					
1 07-1	3.2	3.2	3.1	5.7	4.7
2 MP FF1	2.9	2.7	3.1	4.3	3.7
3 MP FF2	2.7	2.3	3.1	5.3	4.7
LSD at 5% =	0.5	0.5	0.6	2.2	2.1

¹9 = best turf quality²9 = least disease

Table 4. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2009 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2010	Establishment ² Nov. 2009	Pythium ³ Aug. 2010
HARD FESCUE			
1 WB	6.2	6.3	5.0
2 IS-FL 46	6.2	7.0	5.3
3 H93 comp	6.1	6.7	4.3
4 Beacon	6.1	6.3	5.7
5 S2	6.1	7.0	4.7
6 IS-FL 45	6.1	6.3	5.0
7 PSG 3TH3-15	6.0	7.7	5.7
8 IS-FL 55	5.9	5.7	5.3
9 S2S	5.8	6.7	4.3
10 PSG 3TH3-22B	5.8	7.7	5.3
11 H92 comp	5.8	6.3	4.7
12 PSG 3TH3-27	5.8	6.7	4.3
13 IS-FL 48	5.7	6.0	5.3
14 IS-FL 53	5.7	6.0	5.3
15 H91 comp	5.7	7.0	5.0
16 Spartan II	5.7	5.3	5.3
17 PSG 3TH3-11	5.7	7.3	5.7
18 Reliant IV	5.7	7.3	5.3
19 PSG 3TH3-22A	5.7	7.3	5.0
20 S2S E+	5.6	6.0	4.0
21 PSG 3TH3-24	5.6	7.0	4.7
22 PST-4HES	5.6	7.3	3.7
23 H94 comp	5.5	6.0	4.7
24 IS-FL 42	5.5	5.7	4.0
25 Matterhorn	5.5	7.0	4.3
26 IS-FL 47	5.4	6.0	5.3
27 IS-FL 54	5.3	6.0	5.7
28 SR 3150	5.2	5.3	4.3
29 Aurora II	5.2	5.7	4.7
30 IS-FL 39	5.1	5.3	5.3
31 SR 3100	5.1	5.3	4.3
32 Predator	5.1	5.7	3.7
33 Oxford	5.0	6.3	4.0
34 PST-4NY	5.0	6.0	4.3
35 IS-FL 52	4.8	5.0	3.7

(Continued)

Table 4 (continued).

Cultivar or Selection	Turf Quality ¹ 2010	Establishment ² Nov. 2009	Pythium ³ Aug. 2010
HARD FESCUE (cont.)			
36 AZB-1	4.7	6.7	3.7
37 AZB-9	4.7	7.7	4.0
38 AZB-14	4.6	7.3	3.3
39 AZB-8	4.6	7.0	3.7
40 PST-4DON	4.4	6.7	4.0
41 AZB-5	4.4	7.0	3.7
42 AZB-11	4.4	6.3	3.7
43 AZB-4	4.4	6.7	3.7
44 AZB-12	4.4	6.7	3.7
45 PST-Syn-4RUB	4.3	7.3	4.7
46 AZB-10	4.3	6.3	4.0
47 AZB-6	4.3	6.3	4.0
48 AZB-3	4.3	7.0	3.7
49 Eureka II	4.2	6.3	3.0
50 AZB-7	4.2	6.7	4.0
51 AZB-2	4.2	6.7	3.3
52 AZB-15	4.2	6.3	3.0
53 AZB Bulk	4.1	6.0	3.3
54 SRX 3K	4.0	3.0	4.7
55 AZB-13	4.0	6.7	3.7
56 Aurora Gold	2.7	1.3	3.0
57 PSG 3TH3-6	5.8	6.7	5.3
58 PSG 3TH3-8	5.3	7.0	5.7
CHEWINGS FESCUE			
1 Rushmore	5.8	7.3	2.7
2 PSG OC3	5.6	6.0	3.7
3 IS-FRC 39	5.6	6.3	5.3
4 TCP	5.4	7.3	4.0
5 IS-FRC 30	5.4	7.7	3.0
6 IS-FRC 34	5.4	7.0	2.7
7 SR 5130	5.3	7.0	2.3
8 IS-FRC 36	5.2	7.0	3.7
9 Magic Wand	5.0	7.0	3.7
10 IS-FRC 33	5.0	6.7	2.7

(Continued)

Table 4 (continued).

Cultivar or Selection	Turf Quality ¹ 2010	Establishment ² Nov. 2009	Pythium ³ Aug. 2010
CHEWINGS FESCUE (cont.)			
11 Longfellow II	4.9	7.3	2.3
12 7 Seas	4.9	8.0	2.0
13 Columbra II	4.8	6.3	3.3
14 Intrigue II	4.7	6.3	3.3
15 IS-FRC 35	4.7	6.7	4.7
16 Compass	4.7	5.7	4.0
17 Shadow II	4.7	5.0	2.0
18 PST-R4TC	4.7	6.3	3.0
19 Treazure II	4.6	7.0	2.3
20 PST-4C30D	4.4	6.7	3.3
21 Ambassador	4.2	7.3	2.7
22 Jamestown IV	4.1	7.3	3.3
23 SR 5100	4.0	6.0	2.7
24 PST-4CSD	4.0	5.0	3.0
25 PSG 5SD2	3.7	7.7	4.0
26 Silhouette	3.4	4.3	2.0
27 Victory II	1.7	1.0	2.3
STRONG CREEPING RED FESCUE			
1 IS-FRR 68	5.8	6.3	3.3
2 IS-FRR 55	5.5	7.3	4.0
3 PSG 5RJ8	5.5	6.7	3.0
4 IS-FRR 51	5.4	7.3	4.3
5 PSG 5RM	5.4	6.7	4.0
6 OS2	5.4	6.3	4.0
7 PSG 5B242	5.4	6.0	4.0
8 PSG 5RJ7	5.4	7.7	4.0
9 PSG 5RJ2	5.4	7.7	3.7
10 PSG 5RJ6	5.4	7.3	4.0
11 Navigator II	5.3	7.7	3.7
12 PSG 5RJ5	5.2	7.0	3.7
13 IS-FRR 60	5.2	7.0	4.7
14 IS-FRR 62	5.2	7.3	3.3
15 PSG 5RJ4	5.1	7.7	3.0

(Continued)

Table 4 (continued).

Cultivar or Selection	Turf Quality ¹ 2010	Establishment ² Nov. 2009	Pythium ³ Aug. 2010
STRONG CREEPING RED FESCUE (cont.)			
16 PSG 5RJ1	5.1	7.0	4.0
17 Epic	5.0	6.7	3.0
18 IS-FRR 67	5.0	7.7	3.3
19 STC1 comp	5.0	6.7	3.0
20 Shademaster III	5.0	7.0	3.7
21 IS-FRR 61	4.9	7.0	3.0
22 Jasper II	4.9	7.3	2.3
23 STC2 comp	4.9	6.0	3.0
24 PSG 5RJ3	4.9	7.7	3.3
25 PSG 5RJ9	4.9	5.7	3.3
26 Garnet	4.7	6.7	3.0
27 Lustrous	4.6	7.0	2.3
28 PST-8000	4.4	7.0	2.0
29 Aberdeen	4.4	7.0	3.0
30 Razor	4.4	7.0	2.3
31 PST-4CR10	4.4	7.0	2.7
32 Gibraltar	4.3	7.3	2.7
33 PST-4DEN	4.3	8.0	3.0
34 Pathfinder	4.3	6.7	3.0
35 SR 5250	4.3	6.7	3.3
36 Foxy II	4.2	8.0	2.7
37 Audubon	4.0	8.3	2.3
38 Wendy Jean	4.0	7.3	3.7
39 Cindy Lou	3.9	6.7	4.0
40 Splendor	3.5	5.3	2.3
41 SR 5210	3.2	7.7	2.7
BLEND			
1 SCFF1	5.1	6.0	4.3
2 SCFF3	4.8	7.0	4.0
3 SCFF2	4.5	7.3	3.7

(Continued)

Table 4 (continued).

Cultivar or Selection	Turf Quality ¹ 2010	Establishment ² Nov. 2009	Pythium ³ Aug. 2010
SLENDER CREEPING RED FESCUE			
1 Shoreline	5.0	7.3	4.0
2 SRX 52961	4.8	6.7	2.3
3 PST-4SEA	4.5	7.7	3.0
4 Seabreeze GT	4.4	8.3	3.7
5 ASRO 50	4.4	7.0	3.7
6 SRX 5500	4.1	7.0	3.3
SHEEPS FESCUE			
1 Marco Polo	4.6	6.7	3.7
2 Azure	3.8	6.0	3.3
BLUE x HARD FESCUE			
1 Little Bighorn	4.1	6.0	3.0
2 Bighorn GT	3.5	3.7	3.0
TUFTED HAIRGRASS			
1 PST-Syn-DC8	4.1	6.0	1.3
2 DCM-bulk	3.9	6.0	1.3
3 SCDES	3.4	6.7	1.3
BLUE FESCUE			
1 SR 3210	1.7	1.0	2.0
LSD at 5% =	0.8	1.5	1.7

¹9 = best turf quality²9 = most rapid establishment³9 = least disease

Table 5. Performance of turfgrass selections in a low maintenance trial seeded in August 2008 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----					Wear Quality ² 2010	Wear Recovery ³ 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.	2009 Avg.	2010 Avg.		
1 TH6 Comp	6.9	6.4	7.4	8.3	7.7		
2 Reliant IV	6.9	6.2	7.6	7.5	6.7		
3 Beacon	6.6	6.2	7.0	7.5	7.0		
4 Com	6.6	7.1	6.1	3.7	4.3		
5 Radar	6.6	6.6	6.7	4.7	5.0		
6 Spartan II	6.6	6.2	7.0	7.8	7.3		
7 Fairmont	6.5	6.7	6.3	4.7	4.7		
8 Beacon	6.5	6.1	6.9	7.7	7.3		
9 PSM-6351	6.5	7.0	6.0	5.2	4.7		
10 IS-FRR-62	6.5	6.5	6.3	4.2	2.3		
11 Viking	6.5	6.2	6.7	7.8	6.3		
12 Navigator II	6.4	6.7	6.1	3.7	2.3		
13 Gotham	6.4	5.9	7.0	7.5	6.0		
14 PSG 50C3	6.4	6.1	6.7	5.0	6.0		
15 PSG-5RM	6.3	6.5	6.2	4.2	2.3		
16 TH3 Comp	6.3	6.1	6.5	7.5	7.3		
17 TH4 Comp	6.3	6.2	6.5	7.7	6.7		
18 SR 3150	6.3	5.9	6.8	8.0	6.3		
19 Inferno	6.3	6.3	6.4	4.3	4.3		
20 LW	6.3	6.3	6.4	5.0	6.7		
21 Faith	6.3	6.7	5.9	4.3	5.7		
22 STR 8BB5	6.2	6.3	6.1	4.5	5.0		
23 Cochise IV	6.2	6.4	6.1	4.3	5.7		
24 IS-FRR-51	6.2	6.9	5.4	3.2	1.7		
25 Shadow II	6.2	6.2	6.1	3.7	4.0		

(Continued)

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Wear Quality ² 2010	Wear Recovery ³ 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.	2009 Avg.	2010 Avg.		
26 BIZM							
27 TH5 Comp	Tall fescue	6.2	6.3	6.0	3.8	4.7	
28 ATE	Hard fescue	6.1	5.8	6.5	7.3	6.3	
29 Intrigue II	Tall fescue	6.1	6.0	6.2	4.2	5.0	
30 SR 5130	Chewings fescue	6.1	6.3	5.9	4.2	4.3	
	Chewings fescue	6.1	6.3	5.8	4.0	3.7	
31 PST-4HES	Hard fescue	6.1	5.8	6.4	7.3	6.7	
32 Lacrosse	Chewings fescue	6.0	6.2	5.9	3.8	3.3	
33 IS-FRR-33	Strong creeping red fescue	6.0	6.1	5.9	4.5	5.3	
34 Oxford	Hard fescue	6.0	5.8	6.1	7.0	6.3	
35 Jasper II	Strong creeping red fescue	6.0	6.0	6.0	3.2	1.7	
36 Epic	Strong creeping red fescue	6.0	6.5	5.5	2.7	1.0	
37 RP2	Tall fescue	6.0	6.4	5.6	4.0	5.3	
38 SR 8650	Tall fescue	5.9	5.8	5.9	4.2	6.3	
39 SR 8650	Tall fescue	5.9	6.3	5.6	4.2	4.7	
40 OC1	Chewings fescue	5.8	6.2	5.5	3.5	4.3	
41 NC-HF1	Hard fescue	5.8	5.4	6.2	6.8	5.3	
42 Longfellow II	Chewings fescue	5.8	5.6	6.0	3.7	3.3	
43 Shenandoah Elite	Tall fescue	5.8	6.3	5.3	4.8	6.3	
44 Monet	Tall fescue	5.8	6.0	5.5	4.2	4.7	
45 R6 Comp	Strong creeping red fescue	5.7	5.9	5.6	3.5	3.0	
46 FOM Comp	Tall fescue	5.7	5.6	5.8	5.2	6.3	
47 RAD-843	Kentucky bluegrass	5.7	5.8	5.5	3.5	3.3	
48 Dynamic II	Tall fescue	5.7	6.2	5.2	4.7	6.7	
49 Zodiac	Chewings fescue	5.7	5.9	5.5	4.3	3.7	
50 Cardinal	Strong creeping red fescue	5.7	6.1	5.2	3.3	1.7	

(Continued)

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Wear Quality ² 2010	Wear Recovery ³ 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.	2009 Avg.	2010 Avg.		
51 Six Point	Tall fescue	5.7	5.9	5.5	4.2	4.3	
52 FOE Comp	Tall fescue	5.7	5.3	6.0	5.8	5.7	
53 Treasure II	Chewings fescue	5.6	5.9	5.3	4.5	4.3	
54 SR 8550	Tall fescue	5.6	6.0	5.2	3.5	3.7	
55 Mustang 4	Tall fescue	5.6	6.3	5.0	3.3	4.3	
56 Van Gogh	Tall fescue	5.6	6.2	5.0	3.8	4.3	
57 PSG 85QR	Tall fescue	5.5	6.0	5.1	4.0	4.3	
58 Speedway	Tall fescue	5.5	5.9	5.2	3.0	5.3	
59 Mystere	Kentucky bluegrass	5.5	5.7	5.4	3.5	2.7	
60 Ambrose	Chewings fescue	5.5	5.4	5.6	3.0	3.3	
61 IS-FRR-35	Strong creeping red fescue	5.5	5.8	5.1	4.3	5.7	
62 Bighorn	Blue x hard fescue	5.5	5.1	5.8	7.3	5.3	
63 Grande II	Tall fescue	5.5	5.5	5.4	4.5	4.3	
64 IS-TF67	Tall fescue	5.5	6.0	5.0	3.7	4.7	
65 Longhorn	Texas x Kentucky bluegrass hybrid	5.4	5.8	5.1	3.2	2.3	
66 Columbra II	Chewings fescue	5.4	5.1	5.8	2.8	2.7	
67 Ambassador	Chewings fescue	5.4	5.4	5.4	3.3	2.3	
68 Wendy Jean	Strong creeping red fescue	5.4	5.6	5.3	3.3	1.3	
69 Falcon V	Tall fescue	5.4	5.9	5.0	4.5	5.7	
70 Shenandoah III	Tall fescue	5.4	6.0	4.9	4.0	4.3	
71 Masterpiece	Tall fescue	5.4	5.3	5.4	4.2	5.3	
72 Falcon IV	Tall fescue	5.4	5.8	5.0	3.8	4.0	
73 A03TB-364	Texas x Kentucky bluegrass hybrid	5.4	5.7	5.0	4.5	2.7	
74 SR 5250	Strong creeping red fescue	5.4	5.5	5.2	2.5	1.7	
75 Aberdeen	Strong creeping red fescue	5.4	5.3	5.4	3.2	1.7	

(Continued)

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Wear Quality ² 2010	Wear Recovery ³ 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.	2009 Avg.	2010 Avg.		
76 Picasso	Tall fescue	5.4	5.5	5.2	4.2	5.3	
77 Jaguar 4G	Tall fescue	5.4	5.9	4.9	3.7	4.3	
78 Rembrant	Tall fescue	5.3	5.6	5.1	4.8	4.3	
79 DaVinci	Tall fescue	5.3	5.1	5.6	4.3	4.7	
80 Endeavor II	Tall fescue	5.3	5.5	5.1	4.7	6.0	
81 A04-69	Kentucky bluegrass	5.3	6.0	4.6	3.2	2.7	
82 P-105	Kentucky bluegrass	5.2	5.8	4.6	3.8	4.0	
83 Swing	Strong creeping red fescue	5.2	4.9	5.6	3.3	2.3	
84 B6 Comp	Strong creeping red fescue	5.2	5.4	5.0	3.0	4.0	
85 Falcon NG	Tall fescue	5.2	5.3	5.2	4.3	5.3	
86 Arid 3	Tall fescue	5.2	5.3	5.2	3.8	4.3	
87 A05TB-386	Texas x Kentucky bluegrass hybrid	5.2	6.0	4.3	2.8	1.7	
88 PST-48Y7	Strong creeping red fescue	5.2	6.0	4.3	3.2	1.0	
89 Cayenne	Tall fescue	5.1	5.4	4.9	3.2	5.0	
90 Quest	Tall fescue	5.1	5.1	5.1	3.5	4.3	
91 A03-84	Kentucky bluegrass	5.1	5.9	4.2	3.0	2.7	
92 Audubon	Strong creeping red fescue	5.1	5.2	4.9	3.3	1.7	
93 Turbo	Tall fescue	5.1	5.2	4.9	4.3	5.0	
94 PST-4CSD	Chewings fescue	5.0	5.5	4.6	2.7	2.0	
95 ASC 245	Strong creeping red fescue	5.0	5.4	4.7	2.3	1.3	
96 Cascade	Chewings fescue	4.9	5.2	4.6	2.7	1.3	
97 Razor	Strong creeping red fescue	4.9	5.1	4.7	2.3	2.0	
98 Marrakech	Tall fescue	4.9	4.9	4.9	3.8	4.7	
99 Champagne	Kentucky bluegrass	4.9	4.9	4.6	3.2	2.3	
100 Shoreline	Slender creeping red fescue	4.9	5.2	4.5	3.3	1.0	

(Continued)

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Wear Quality ² 2010	Wear Recovery ³ 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.			
101 Brockton	4.9	4.9	4.9	3.0	3.7	
102 RAD-815	4.8	5.0	4.6	3.0	4.0	
103 PST A04-77	4.8	5.8	3.8	2.8	3.0	
104 Pathfinder	4.8	5.2	4.5	2.3	2.0	
105 MVS-BB-ITF	4.8	4.8	4.8	3.8	3.7	
106 Seabreeze GT	4.8	5.4	4.1	2.5	1.0	
107 ATF 1327	4.8	4.8	4.7	3.8	4.3	
108 A05-894	4.7	5.8	3.8	2.7	2.3	
109 A04TB-338	4.7	5.3	4.1	2.8	2.3	
110 J-5	4.7	5.0	4.4	2.8	2.0	
111 SRX 5SDP2	4.7	4.7	4.7	3.5	3.0	
112 RAD-418	4.7	5.1	4.2	3.0	2.7	
113 RAD-849	4.7	5.2	4.1	2.5	2.7	
114 A04TB-258	4.6	5.1	4.0	3.5	3.0	
115 Scorpion II	4.6	5.2	4.0	3.5	4.0	
116 Jaguar 3	4.6	4.1	5.0	4.2	4.7	
117 RAD-1224	4.5	4.9	4.2	2.7	2.7	
118 A99-2026	4.5	5.3	3.7	2.5	3.7	
119 A04-1315	4.5	5.3	3.8	3.3	3.0	
120 A03TB-589	4.5	5.9	3.0	2.7	2.3	
121 A07-5	4.4	5.5	3.3	2.3	2.7	
122 PRO AT-1	4.4	6.4	2.4	2.0	3.0	
123 Jamestown II	4.4	4.6	4.2	2.7	2.7	
124 Guinness	4.4	5.1	3.5	2.7	2.0	
125 Farenheit 90	4.4	5.5	3.2	2.0	1.3	

(Continued)

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Wear Quality ² 2010	Wear Recovery ³ 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.			
126 BQC Comp	4.4	6.2	2.6	2.2	3.7	
127 NBC Comp	4.4	6.4	2.3	2.7	3.7	
128 RAD-914	4.3	5.3	3.3	2.0	1.7	
129 Regiment II	4.3	4.4	4.2	3.2	3.3	
130 PBP Comp	4.3	5.9	2.7	1.8	3.0	
131 Blackberry	4.2	4.6	3.9	2.8	1.7	
132 Cabernet	4.2	5.0	4.0	2.7	2.7	
133 Bonaire	4.2	4.6	3.8	2.3	1.3	
134 A06-2	4.2	4.8	3.5	2.8	2.3	
135 A04-1347	4.2	4.8	3.6	2.5	3.0	
136 A02-1428	4.2	4.7	3.6	3.0	2.7	
137 A98-344	4.1	5.1	3.1	2.7	2.3	
138 GO-ABC	4.1	4.6	3.7	2.5	1.0	
139 RAD-897	4.1	4.9	3.2	2.5	2.3	
140 Brooklawn	4.1	4.5	3.5	2.7	1.7	
141 A06-6	4.1	5.0	3.1	2.5	2.0	
142 A06-26	4.1	4.8	3.3	3.3	2.7	
143 A99-2377	4.0	4.7	3.3	2.3	1.7	
144 PSG-2677	4.0	4.6	3.4	3.0	2.3	
145 A05TB-60	4.0	4.1	4.0	3.0	2.7	
146 Polka	4.0	3.6	4.5	2.3	2.3	
147 07-MGD Comp	4.0	5.8	2.3	2.3	3.7	
148 RAD-507	4.0	4.8	3.2	2.5	2.0	
149 Julia	4.0	5.0	3.0	2.7	1.7	
150 SDS Comp	4.0	6.0	2.0	2.5	3.7	

(Continued)

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Wear Quality ² 2010	Wear Recovery ³ 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.			
151 A03TB-676	4.0	4.5	3.4	2.7	2.0	
152 A05-361	3.9	4.6	3.2	2.3	2.0	
153 A04-1477	3.9	4.5	3.3	2.0	1.0	
154 RAD-457	3.9	4.8	3.0	2.0	2.0	
155 RAD-600	3.9	4.2	3.7	2.3	1.7	
156 07-11295	3.9	4.9	2.9	2.8	2.7	
157 Boreal	3.9	3.5	4.2	2.3	1.3	
158 RAD-232	3.8	4.7	3.0	2.0	1.3	
159 A04-1504	3.8	4.6	3.1	2.3	1.7	
160 Tiger II	3.8	5.0	2.7	2.3	2.0	
161 Sonoma	3.8	5.2	3.1	2.3	2.7	
162 RAD-825	3.8	4.8	2.7	1.5	1.0	
163 RAD-861	3.7	4.3	3.2	2.2	1.7	
164 A00-1395	3.7	4.8	2.6	2.5	4.0	
165 Spitfire	3.7	4.5	3.0	2.2	2.0	
166 Diva	3.6	4.6	2.6	2.0	2.3	
167 A04-1470	3.6	4.1	3.0	1.7	1.7	
168 A03TB-938	3.6	4.3	2.9	1.8	1.7	
169 A08-317	3.6	4.1	3.0	2.0	2.3	
170 PST-K8-75NO	3.5	3.7	3.3	2.3	2.3	
171 Baron	3.5	4.0	2.9	2.7	2.3	
172 A05-314	3.5	4.5	2.4	1.8	2.0	
173 A04-1557	3.5	4.4	2.6	2.0	1.3	
174 A05TB-382	3.5	4.3	2.5	1.2	1.0	
175 A08-318	3.5	4.0	2.9	2.5	1.7	

(Continued)

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Wear Quality ² 2010	Wear Recovery ³ 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.			
176 A05TB-396						
177 SR 7150	3.5	4.3	2.6	2.0	1.7	
178 Absolute	3.4	4.4	2.4	2.7	1.3	
179 Bewitched	3.4	5.1	2.8	2.0	1.7	
180 Bedazzled	3.4	4.0	2.8	2.2	2.3	
	3.4	4.3	2.5	2.8	2.7	
181 A08-316						
182 Blue-sation	3.4	3.7	3.1	2.0	1.7	
183 A99-447	3.4	5.4	2.8	2.3	2.0	
184 SR 7100	3.4	4.3	2.4	2.2	2.0	
185 Azure	3.4	4.6	2.1	2.5	2.7	
	3.3	3.1	3.6	2.5	1.7	
186 A93-201						
187 H04-13	3.3	3.9	2.7	1.5	1.3	
188 PST-K8-76NO	3.3	3.7	2.8	2.5	2.0	
189 Alister	3.2	3.3	3.1	1.7	2.0	
190 Alexa II	3.2	4.6	1.8	1.5	1.3	
	3.2	3.9	2.5	2.0	1.0	
191 Impact						
192 H03-546	3.1	4.3	2.7	2.5	2.0	
193 AKB-449	3.1	3.5	2.7	1.5	1.3	
194 A04TB-327	3.1	3.2	2.9	2.0	1.0	
195 Rhythm	3.1	3.7	2.4	1.7	1.0	
	3.0	4.0	2.1	1.8	1.7	
196 Bedazzled						
197 EDD	3.0	3.8	2.3	1.8	2.3	
198 NuDestiny	3.0	4.0	2.0	1.7	1.0	
199 Zinfandel	3.0	4.0	2.4	2.0	1.7	
200 SR 2284	3.0	4.5	2.2	1.5	1.7	
	2.9	3.7	2.1	1.5	1.0	

(Continued)

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Wear Quality ² 2010	Wear Recovery ³ 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.				
201 RAD-803	Kentucky bluegrass	2.9	3.2	2.6	2.2	1.7	
202 A05TB-459	Texas x Kentucky bluegrass hybrid	2.9	3.6	2.2	1.3	1.0	
203 RAD-892	Kentucky bluegrass	2.9	3.2	2.5	1.7	1.3	
204 Bandera	Texas x Kentucky bluegrass hybrid	2.9	3.6	2.1	1.7	1.7	
205 Argos	Kentucky bluegrass	2.8	4.4	2.3	1.5	1.0	
206 PST-K8-80NL	Kentucky bluegrass	2.8	3.1	2.5	1.5	1.7	
207 Rugby II	Kentucky bluegrass	2.8	3.7	2.1	1.7	1.3	
208 A05TB-41	Texas x Kentucky bluegrass hybrid	2.8	3.5	2.0	1.3	1.0	
209 Beyond	Kentucky bluegrass	2.7	4.3	1.9	2.0	1.3	
210 Liberator	Kentucky bluegrass	2.7	3.9	2.4	1.7	1.0	
211 Nublu Plus	Kentucky bluegrass	2.7	4.3	2.0	1.7	1.0	
212 Bordeaux	Kentucky bluegrass	2.7	4.0	2.1	1.8	2.0	
213 NuChicago	Kentucky bluegrass	2.7	4.2	2.0	2.2	1.3	
214 Odyssey	Kentucky bluegrass	2.7	3.8	2.3	1.3	1.3	
215 Blueberry	Kentucky bluegrass	2.7	3.5	1.9	1.5	1.3	
216 A04TB-212	Texas x Kentucky bluegrass hybrid	2.7	3.2	2.2	1.3	1.3	
217 PST-DCM	Deschampsia	2.7	3.5	1.9	1.5	1.0	
218 Everest	Kentucky bluegrass	2.7	4.3	2.1	1.8	1.3	
219 Ginney II	Kentucky bluegrass	2.7	3.6	1.7	1.2	1.0	
220 A05-2435	Kentucky bluegrass	2.7	3.2	2.1	1.5	1.7	
221 PST-102-1013	Kentucky bluegrass	2.7	2.2	3.1	1.5	1.0	
222 Freedom III	Kentucky bluegrass	2.6	3.8	2.1	1.7	1.3	
223 Tsunami	Kentucky bluegrass	2.6	4.1	2.2	1.8	2.0	
224 Exeter	Colonial bentgrass	2.6	3.2	2.0	1.7	2.0	
225 Blue Chip Plus	Kentucky bluegrass	2.6	4.0	2.0	1.8	1.0	

(Continued)

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Wear Recovery ³ 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.	Wear Quality ² 2010	Wear Recovery ³ 2010	
226 RAD-928	2.6	3.0	2.1	1.5	1.7	
227 Nuglade	2.5	3.4	2.1	1.7	1.3	
228 Solar Eclipse	2.5	4.1	1.8	1.3	1.7	
229 Sudden Impact	2.5	3.7	1.8	1.2	1.7	
230 Perfection	2.5	3.8	1.8	1.0	1.0	
231 Rush	2.4	3.1	2.1	1.2	1.0	
232 4-Season	2.4	3.7	1.9	1.5	1.0	
233 Limousine	2.2	2.7	2.1	1.8	1.7	
234 A04TB-7	2.2	1.8	2.7	1.8	1.3	
235 Everglade	2.0	2.7	1.7	1.2	1.3	
236 Total Eclipse	2.0	3.0	1.5	1.5	1.3	
237 Boutique	1.8	2.1	1.4	1.3	1.3	
238 Fulfts	1.7	1.5	1.8	1.2	1.0	
239 Blue-Mazing	1.4	1.8	1.3	1.0	1.0	
LSD at 5% =	1.0	1.0	1.1	1.1	1.4	

¹9 = best turf quality

²9 = least wear

³9 = best wear recovery

Table 6. Yearly nitrogen (N) applied and mowing height (Ht) on fine fescue tests established at Adelphia, NJ.

	2007		2008		2009		2010	
	N ¹	Ht ²	N	Ht	N	Ht	N	Ht
Table 1 (2006).....	1.0	1.5	1.0	1.5	1.5	1.5	0.5	1.5
Table 2 (2007).....			1.3	1.5	1.5	1.5	1.0	1.5
Table 3 (2008).....					1.0	1.5	1.0	1.5
Table 4 (2009).....							1.0	1.5
Table 5 (2008 Low Maintenance)					1.0	2.5	0.0	2.5

¹Annual N applied (lb/1000 ft²)

²Mowing height in inches