# 77th RHODE ISLAND TURFGRASS

# FIELD DAY

# 2008

UNIVERSITY OF
Rhode Island

URI TURF

AGRICULTURAL EXPERIMENT STATION
KINGSTON, RHODE ISLAND

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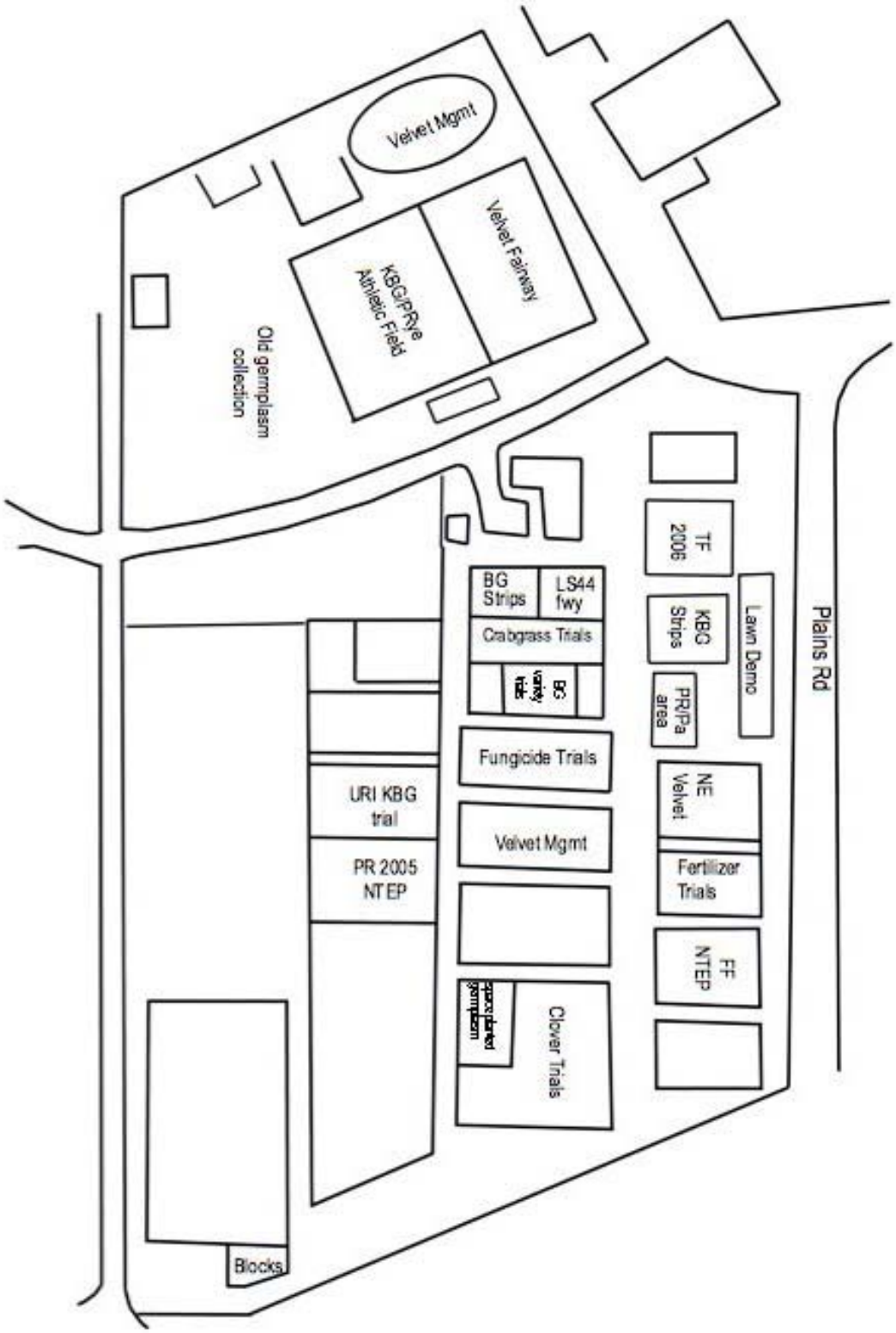
# SKOGLEY TURFGRASS RESEARCH FACILITY 2008



## FIELD DAY SCHEDULE 2008

| | |
|---|---|
| 7:30 – 9:00 AM | **Registration and Check-in.**<br>(A light buffet breakfast will be served until 10:30am). |
| 9:00 – 1:30 PM | **Visit with commercial exhibitors.**<br>(Visit with regional turf products and equipment distributors. The URI turf field day hosts the largest gathering of regional product distributors outside the New England Regional Turfgrass Conference and Show) |
| **10:30 AM- 1:00 PM** | **Tour of the turf plots and research demonstrations.** |
| 10:30 AM | Varietal bentgrass resistance to plant pathogenic nematodes, Dr. N.A. Mitkowski |
| 10:45 AM | Dollar spot putting green fungicide trails, Dr. N.A. Mitkowski |
| 11:00 AM | Herbicidal trials of crabgrass and clover at lawn height, Dr. N.A. Mitkowski |
| 11:30 AM | Kentucky bluegrass, perennial ryegrass, and bentgrass trials, Dr. R. Brown |
| 12:00 PM | Fine Fescue Trial, Dr. R. Brown |
| 12:15 PM | Organic fertilizer performance trials, Dr. R. Brown and J. Fetter |
| 12:30 PM | Organic fertilizers for copper spot control on bentgrass, Dr. R. Brown, C. Percivalle |
| 12:45 PM | Tall fescue trial, Dr. R. Brown |
| 1:00 PM | Turf Insect control research and update, Dr. Steven Alm |
| 1:30 PM | **Adjourn to Laurel Lane Golf Course for an event sponsored by the URI Turf Alumni; $45 fee to be paid to Rhode Island Turfgrass Association** |

## TABLE OF CONTENTS

## Friends and Supporters of the URI Turfgrass Program

**The URI turfgrass faculty and staff extend a sincere gratitude to the following organizations and individuals that have contributed funds to support our program.**

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**Special Thanks to the following individuals/organizations for their outstanding contributions to the Skogley Turfgrass Research Farm in support of turfgrass research at URI:**

Bob Dyson and Ed Walsh for volunteering to help perform needed equipment repairs

Dana Dubois and Turf Products Corporation for donating the use of a Toro Greensmaster 3150 triplex mower

George Wise and Steve Willand Company for donating the use of an electric Jacobsen E-Walk greensmower

Mike Agnew and Syngenta for the donation of fungicides and pesticides

Bob Chalifour and Holliston Sand Company for donating topdressing sand

Mike Kroian and Harrell's Turf Supply for donating pesticides and fertilizers

Eric Hagenstein and Allen's Seed Store for donating fertilizers

Advanta Seeds Pacific for donating a camera light

# URI TURFGRASS FACULTY & STAFF

**Dr. Steven R. Alm**
Dr. Alm is a Professor of Entomology. He received his B. S. and M. S. in Entomology from the State University of New York at Syracuse and his Ph.D. from The Ohio State University. His current research focuses on innovative approaches to managing turfgrass insect pests with bacteria, entomopathogenic nematodes and pheromones.

**Dr. Rebecca Nelson Brown**
Dr. Brown is an Assistant Professor of Turfgrass Genetics and is involved in the research of turfgrass genetics and breeding. Her work involves conducting variety trials, collecting and evaluating plant material, and applied breeding research. She is also involved with basic genetics research involving molecular techniques. She received her Ph.D. in Horticulture from Oregon State University in Corvallis, Oregon, and spent two years doing postdoctoral research at the USDA on seed production in ryegrass.

**Dr. Nathaniel A. Mitkowski**
Dr. Mitkowski is an Associate Professor of Plant Pathology. His research focuses primarily on stress related diseases on amenity turfgrasses and he teaches Diseases of Turf and Ornamentals, Advanced Turf Management and Plant Improvement. Dr. Mitkowski also runs the URI Turfgrass Disease Diagnostic laboratory that receives samples from across North America. He earned a Ph.D. in Plant Pathology from Cornell University and B.S. in Plant Pathology from the University of Massachusetts.

**Dr. Bridget Ruemmele**
Dr. Ruemmele is a Professor of Turfgrass Improvement and received her BS from the University of Wisconsin and her M.S. and Ph.D. from the University of Minnesota. Her area if interest is in the field of turfgrass improvement and low impact turfgrass environmental studies. Dr. Ruemmele teaches weed management, and the introduction to turfgrass management.

**Dr. W. Michael Sullivan**
Dr. Sullivan is a Professor of Agronomy and has been at URI since 1981. His research has focused on land-use management practices and their impact or potential impact on water quality. He earned his Ph.D. in Agronomy from the University of Nebraska in 1981. He holds an M.S. in Agronomy from the University of Vermont, and a B.S. in Plant and Soil Science from the University of Rhode Island. Dr. Sullivan was appointed Director of the Department of Environmental Management April 2005 and is currently on leave from faculty responsibilities.

**Research Support Staff**
Carl D. Sawyer, M.S.
Greg Fales, B.S.

**Graduate Students**
Parminderjit Kaur
Cynthia Percivalle
Joe Fetter
Sanal Krishnan
Darryl Ramoutar

**Student Support**
Tim Sherman
Arielle Chaves
Samantha DeCuollo

**Additional Plant Science Faculty**
Dr. Richard Casagrande, Professor
Dr. Larry Englander, Associate Professor
Dr. Howard Ginsberg, Professor
Dr. Roger Lebrun, Professor
Dr. Thomas Mather, Professor
Dr. Brian Maynard, Professor
Ms. Peggy Siligato, Instructor

**Emeritus Professors**
Dr. Thomas Duff
Dr. Richard Hull
Dr. Noel Jackson
Dr. Ray Taylorson
John Jagschitz

**Adjunct Professors**
Dr. Susan Gordon

# 2008 Evaluation of Fungicides for Curative Control of Dollar Spot
# Greens Height

**Dr. Nathaniel Mitkowski, Dept. of Plant Sciences**

Compounds applied in 2.2 gallons of water per 1000 $ft^2$ at 40 psi. Plot size, 5' x 5', three replicates on a push-up green, originally seeded in 1983 to a mixture of 83% 'Penncross' and 17% 'Penneagle' creeping bentgrass with 20% *Poa annua*. Applications were made on a 14 day schedule except as noted.

| Treatment (Rate) | Row #1 | Row #2 | Row #3 |
|---|---|---|---|
| | | | |
| 1. Control | 1 | 10 | 15 |
| 2. Tartan 2.88 SC – 1.0 oz/M (21 Days) | 2 | 17 | 29 |
| 3. Tartan 2.88 SC – 1.5 oz/M (21 Days) | 3 | 23 | 14 |
| 4. Signature 80 WDG – 4.0 oz/M (21 Days) | 4 | 14 | 28 |
| 5. Emerald 70WG – 0.13 oz/M | 5 | 1 | 13 |
| 6. Trinity 1.7SC – 1.0 oz/M | 6 | 6 | 27 |
| 7. Emerald 70WG – 0.18 oz/M (21 Days) | 7 | 20 | 12 |
| 8. Trinity 1.7SC – 1.5 oz/M (21 Days) | 8 | 24 | 26 |
| 9. Banner MAXX 1.3MEC – 1.0 oz/M | 9 | 15 | 11 |
| 10. Banner MAXX 1.3MEC – 1.5 oz/M | 10 | 26 | 25 |
| 11. Banner MAXX 1.3MEC – 1.0 oz/M (21 Days) | 11 | 19 | 10 |
| 12. Banner MAXX 1.3MEC – 1.5 oz/M (21 Days) | 12 | 2 | 24 |
| 13. Experimental | 13 | 25 | 9 |
| 14. Experimental | 14 | 5 | 23 |
| 15. Experimental (21 Days) | 15 | 12 | 8 |
| 16. Experimental (21 Days) | 16 | 22 | 22 |
| 17. Experimental | 17 | 3 | 7 |
| 18. Experimental | 18 | 7 | 21 |
| 19. Experimental (21 Days) | 19 | 28 | 6 |
| 20. Experimental (21 Days) | 20 | 29 | 20 |
| 21. Experimental | 21 | 9 | 5 |
| 22. Experimental | 22 | 27 | 19 |
| 23. Disarm 480 – 0.27 oz/M | 23 | 18 | 4 |
| 24. Disarm C – 4.32 oz/M | 24 | 16 | 18 |
| 25. Rhapsody – 5.0 oz/M | 25 | 11 | 3 |
| 26. Rhapsody – 10.0 oz/M | 26 | 8 | 17 |
| 27. Daconil 82.5WG – 1.6 oz/M | 27 | 21 | 2 |
| 28. Daconil 82.5WG – 3.2 oz/M | 28 | 4 | 16 |
| 29. Cleary's 3336 – 6.0oz/M | 29 | 13 | 1 |

Plains Road This Side

## 2008 Evaluation of Fungicides for Preventative Control of Brown Patch

**Dr. Nathaniel Mitkowski, Dept. of Plant Sciences**

Compounds applied in 2.2 gallons of water per 1000 $ft^2$ at 40 psi. Plot size, 5' x 5', three replicates on a push-up green, originally seeded in 1983 to a mixture of 83% 'Penncross' and 17% 'Penneagle' creeping bentgrass with 20% *Poa annua*. Applications were made on a 14 day schedule except as noted.

| Treatment (Rate) | Row #1 | Row #2 | Row #3 |
|---|---|---|---|
| | | | |
| 1. Control | 1 | 3 | 4 |
| 2. Trinity 1.7SC – 1.0 oz/M | 2 | 7 | 8 |
| 3. Insignia 20WG – 0.5 oz/M | 3 | 2 | 5 |
| 4. Disarm 480SC – 0.27 (21 Days) | 4 | 6 | 1 |
| 5. Disarm C – 4.32 (21 Days) | 5 | 8 | 7 |
| 6. Experimental | 6 | 5 | 3 |
| 7. Experimental | 7 | 1 | 6 |
| 8. Heritage 50WG – 0.4 oz/M | 8 | 4 | 2 |

Plains Road This Side

## 2008 Evaluation of Bentgrass Varieties as Nematode Hosts

**Dr. Nathaniel Mitkowski, Dept. of Plant Sciences**

Earlier work by our research group has demonstrated that *Poa annua* is a preferential host for some plant-parasitic nematodes, generating higher population levels than bentgrasses. However, very little work has been done to examine whether there is any resistance to plant-pathogenic nematodes in bentgrass cultivars. We are currently examining the level of host susceptibility of 9 different bentgrass cultivars on site, originally planted in 2007 to a thoroughly homogenized soil

To date, all varieties examined sustained similar levels of nematodes. In a previous study undertaken last year, the velvet bentgrass breeding line 4.1886 consistently supported 2X-3X the number of stunt and lance nematodes as the other grasses. This result was not observed in the current study. Damage symptoms were not observed on any cultivar.

| | | |
|---|---|---|
| 4.1886 (*velvet*) | Providence | A4 |
| A4 | L93 | Penn Cross |
| Legendary (*velvet*) | Penn Cross | 4.1886 (*velvet*) |
| L93 | SR7200 (*velvet*) | Providence |
| SR7200 (*velvet*) | A4 | Legendary (*velvet*) |
| Providence | 4.1886 (*velvet*) | L93 |
| Penn Cross | Legendary (*velvet*) | SR7200 (*velvet*) |

Parking Lot This Side

# 2008 Post-Emergent Crabgrass Control Demonstration

**Dr. Nathaniel Mitkowski, Dept. of Plant Sciences**

In the Fall of 2007, the herbicide Tenacity was released. The active ingredient in Tenacity is mesotrione, a synthetic relative of a natural herbicide produced by *Callistemon citrinus* the lemon bottlebrush plant (native to Australia and commonly planted as an ornamental in the South). The bottle brush plant uses a form of mesotrione to inhibit other plants from growing underneath it. Mesotrione acts by inhibiting chlorophyll production, often resulting in dramatic whitening and purpling of plants, followed by death.

Tenacity has been demonstrated to control clover, crabgrass and creeping bentgrass, as well as other weeds including cocklebur, smooth and redroot pigweed, waterhemp, lambsquarters and ragweed. Most cool-season grasses are resistant to mesotrione, with the exception of some of the fine fescues. Annual bluegrass can also be controlled with mesotrione, when applied at high rates. Often 2 applications of the chemical are necessary but even single applications with halt crabgrass seeding and result in some mortality.

Compounds applied in 2.2 gallons of water per 1000 $ft^2$ at 40 psi on August 6. Plot size, 5' x 5', on a perennial ryegrass stand heavily infested with smooth crabgrass.

| | | | |
|---|---|---|---|
| **Acclaim**<br>0.9 fl oz/M | **Drive**<br>0.37 oz/M | **Tenacity**<br>0.14 fl oz/M | **Tenacity**<br>0.28 fl oz/M |
| **Drive**<br>0.37 oz/M | **Tenacity**<br>0.28 fl oz/M | **Acclaim**<br>0.9 fl oz/M | **Tenacity**<br>0.14 fl oz/M |
| **Tenacity**<br>0.28 fl oz/M | **Tenacity**<br>0.14 fl oz/M | **Drive**<br>0.37 oz/M | **Acclaim**<br>0.9 fl oz/M |

Turf Building this side

## 2008 Mid-Season Post-Emergent Clover Control Trial

**Dr. Nathaniel Mitkowski, Dept. of Plant Sciences**

In the past few years, a number of new combination products have been developed for post-emergent broad-leaf weed control. These products have been formulated to cover a large spectrum of broad-leaf weeds utilizing 3-4 different herbicides. Many products now include crabgrass and nutsedge herbicides. This trial was undertaken using clover as a typical broad-leaf weed, in order to demonstrate the efficacy of a variety of these products. All formulations tested in this trial were liquid in nature.

Compounds applied in 2.2 gallons of water per 1000 $ft^2$ at 40 psi. Plot size, 5' x 5', three replicates on a Bridgehampton loam growing a mixed stand of turfgrasses, heavily infested with white clover. The white clover on site is a combination of native plants and plants established from seed in Fall 2006.

| | | | |
|---|---|---|---|
| 1. Control | 1 | 8 | 10 |
| 2. Trimec – 1.5 oz/M | 2 | 5 | 9 |
| 3. SuperTrimec – 0.75 oz/M | 3 | 10 | 7 |
| 4. RedZone – 1.7 oz/M | 4 | 6 | 2 |
| 5. SpeedZone – 1.8 oz/M | 5 | 3 | 8 |
| 6. Eliminate – 1.1 oz/M | 6 | 1 | 4 |
| 7. Surge – 1.5 oz/M | 7 | 9 | 6 |
| 8. Q4 – 3.0 oz/M | 8 | 2 | 5 |
| 9. Momentum Q – 2.9 oz/M | 9 | 7 | 1 |
| 10. QuickSilver – 0.048 oz/M | 10 | 4 | 3 |

Turf Building This Side

## Components of Herbicides Used in 2008 Clover Study

| | | |
|---|---|---|
| Trimec: | 2,4-D, dimethylamine salt | 25.90% |
| | MCPP-P, dimethylamine salt | 6.93% |
| | Dicamba, dimethylamine salt | 2.76% |
| SuperTrimec: | 2,4-D, 2-ethylhexyl ester | 32.45% |
| | 2,4-DP-P, isooctyl ester | 15.90% |
| | Dicamba, dimethylamine salt | 5.38% |
| RedZone: | 2,4-D, 2-ethylhexyl ester | 22.22% |
| | 2,4-DP-P, isooctyl ester | 11.27% |
| | Dicamba, dimethylamine salt | 2.71% |
| | Carfentrazone-ethyl | 0.50% |
| SpeedZone: | Carfentrazone-ethyl | 0.62% |
| | 2,4-D, 2-ethylhexyl ester | 28.57% |
| | MCPP-P, dimethylamine salt | 5.88% |
| | Dicamba, dimethylamine salt | 1.71% |
| Eliminate: | MCPA, dimethylamine salt | 48.90% |
| | Triclopyr, triethlyamine salt | 5.59% |
| | Dicamba, dimethylamine salt | 4.82% |
| Surge: | Sulfentrazone | 0.67% |
| | 2,4-D, dimethylamine salt | 18.79% |
| | MCPP-P, dimethylamine salt | 6.80% |
| | Dicamba, dimethylamine salt | 3.02% |
| Q4: | Quinclorac | 5.69% |
| | Sulfentrazone | 0.69% |
| | 2,4-D, dimethylamine salt | 12.02% |
| | Dicamba, dimethylamine salt | 1.38% |
| Momentum Q | Quinclorac | 8.25% |
| | 2,4-D, dimethylamine salt | 13.24% |
| | Dicamba, dimethylamine salt | 1.38% |
| Quicksilver | Carfentrazone-ethyl | 12.00% |

N. A. Mitkowski
Dollar spot; *Sclerotinia homoeocarpa*
Department of Plant Sciences
University of Rhode Island
9 E. Alumni Ave., Suite 7
Kingston, RI 02881

**Efficacy of preventative fungicide application for control of dollar spot on creeping bentgrass, 2007.**

Tests were conducted on a Bridgehampton silt loam located at the Skogley Memorial Turfgrass Research Facility at the University of Rhode Island. The turf was maintained at a 0.13-in. mowing height, irrigated as needed and a total of 4 lb N was applied in four separate applications throughout the course of the season as a slow release formulation. Plots measured 5 ft x 5 ft with no borders, and were arranged in a randomized complete block design with three replicates on an original mixture of 83% 'Penncross' and 17% 'Penneagle' creeping bentgrass with approximately 20% *Poa annua* invasion. Fungicides were applied using a $CO_2$-pressurized hand held sprayer fitted with TeeJet 8004VS Visiflow flat fan nozzles delivering 3.2 gal/1000 sq ft at 40 psi. All treatments were first applied on 8 Jun as dollar spot started to appear. All other sprays were made on approximately a 14 day interval (22 Jun, 9 and 24 Jul) with two treatments made on a 21 day interval (29 Jun and 19 Jul). Hand scattered application of *S. homoeocarpa* was made to each plot on 28 May with approximately 75 g per plot of 8-week-old colonized rye.

The level of disease pressure observed during this trial was moderate and similar to that observed at URI in previous years. While many products were able to suppress dollar spot at a disease threshold of 1.0%, a number of products can be considered to have performed inadequately. At the low rate, Tartan did not perform well but performed better at the higher rate and very well in combination with Signature. Headway did not provide adequate dollar spot control at the rate employed; however, higher rates have been effective in past trials at this site. Trinity performed poorly at the 21 day application interval on the last rating date but very well at a 14 day application interval. Cleary's 3336 performed poorly on all rating dates, as has been observed on this site in previous years, suggesting the development of resistance to thiophanate-methyl. Chlorothalonil (Manicure) also performed poorly but is typically not recommended for more than a 10 day application interval for dollar spot in Southern New England. Heritage is not recommended for dollar spot use and did not provide adequate dollar spot control. Disarm did provide good control of dollar spot at the high rate but only moderate control at the lower rate. Chipco 26GT, Emerald, Insignia and Banner MAXX all provided good control of dollar spot in the current study.

| | % dollar spot | | |
|---|---|---|---|
| Treatment and rate per 1000 sq ft | 29 Jun [z] | 13 Jul | 27 Jul |
| Control | 3.3 b | 4.7 b | 6.7 d |
| Tartan 2.88SC 1.0 fl oz | 2.5 ab | 2.3 ab | 2.7 c |
| Tartan 2.88SC 1.5 fl oz | 1.0 ab | 1.7 a | 2.0 abc |
| Tartan 2.88SC 1.0 fl oz + Signature 80WDG 4.0 oz | 1.0 ab | 0.7 a | 0.8 abc |
| Headway 1.4MEC 1.0 fl oz | 2.0 ab | 1.7 a | 1.7 abc |
| Chipco 26GT 2SC 4.0 fl oz | 0.3 ab | 0.2 a | 0.0 a |
| Emerald 70WG 0.13 oz | 0.0 a | 0.0 a | 0.0 a |
| Trinity 1.7SC 1.0 fl oz | 1.0 ab | 1.3 a | 1.2 abc |
| Emerald 70WG 0.13 oz (21 Days) | 0.0 a | 0.5 a | 0.5 ab |
| Trinity 1.7SC 1.0 fl oz (21 Days) | 0.6 ab | 0.5 a | 2.3 bc |
| Insignia 20WG 0.9 oz | 0.0 a | 0.0 a | 0.0 a |
| Banner MAXX 1.3MEC 1.0 fl oz | 0.0 a | 0.0 a | 0.0 a |
| Cleary's 3336 70WP 3.0 oz | 2.3 ab | 2.7 ab | 2.3 bc |
| Heritage 50WG 0.4 oz | 1.7 ab | 2.7 ab | 2.7 c |
| Manicure Ultra 82.5WG 3.25 oz | 1.7 ab | 2.7 ab | 1.5 abc |
| Disarm 4SC 0.18 fl oz | 1.7 ab | 2.3 ab | 2.0 abc |
| Disarm 4SC 0.36 fl oz | 0.3 ab | 1.7 a | 1.0 abc |

[z]Plots were rated based on the percentage of symptomatic plot area. Means within a column followed by the same letter are not significantly different, according to the Waller-Duncan k-ratio t-test (k=100, $P \leq 0.05$).

Mechanisms of Pyrethroid Resistance in Adults of the Annual Bluegrass Weevil, *Listronotus maculicollis* (Kirby), (Coleoptera, Curculionidae) from Connecticut Golf Courses.

Darryl Ramoutar, Ph.D. Candidate

**Abstract.** The annual bluegrass weevil *Listronotus maculicollis* (Kirby) (Coleoptera, Curculionidae), was first seen on *Poa annua* L. (*Poaceae*) turfgrass in Connecticut in 1931. Historically, control of the species had been achieved by chemical means and pyrethroids such as cyfluthrin (Tempo®), bifenthrin (Talstar®), lambda-cyhalothrin (Battle® or Scimitar®), and deltamethrin (Deltagard®) had proven to be very effective, demonstrating an average of 90% pest reduction. Although pyrethroids have offered excellent control, in 2007-08 the development of resistance to this insecticide class was confirmed (Ramoutar et al. in press). Insecticide resistance is usually a result of enhanced chemical detoxification in the insect and it is assumed that this process plays a role in annual bluegrass weevil pyrethroid resistance. The most common insecticide detoxifying enzymes are the cytochrome P450 monooxgenases or mixed function oxidases (P450s), the glutathione S-transferases (GSTs) and the carboxyl-esterases (COEs). These enzymes can be inhibited in the laboratory to elucidate their involvement in conferring resistance. The most experimentally utilized P450, GST and COE inhibitors/synergists are pipronyl butoxide (PBO), diethyl maleate (DEM) and *S*,*S*,*S*-tributyl phosphorotrithioate (DEF) respectively.

Topical application bioassays with bifenthrin and bifenthrin/synergist combinations were conducted on four field collected populations of adult annual bluegrass weevils to determine which enzyme or enzymes are involved in insecticide detoxification or resistance. If the $LD_{50}$ of the bifenthrin/synergist combination was significantly lower than the $LD_{50}$ of bifenthrin alone, then the system being inhibited was determine to be involved in resistance. Our results suggest that as resistance levels or $LD_{50}$'s increase the degree of enzymatic detoxification increases as well. In the pyrethroid susceptible population (New Haven), no enzymatic detoxification was seen. In the population with the lowest level of resistance (Norwich), detoxification only by P450s was involved in resistance. In the population with the second highest level of resistance (Stamford), both P450s and GSTs were involved in insecticide detoxification. And, in the population with the highest level of resistance (Hartford), P450s, GSTs and COEs, were involved in detoxifying the insecticide, thereby leading to the high level of resistance. In the insect populations studied, enzymatic detoxification plays a role in determining the level of pyrethroid resistance.

Table 1. $LD_{50}$ for adult annual bluegrass weevils for bifenthrin and bifenthrin/synergist combinations.

| Pop.(Type) RR† | Treat. SR° | N | Slope (SE) | $LD_{50}$ (µg/ml) | $\chi^2$(df)¶ | 95% FL |
|---|---|---|---|---|---|---|
| New Haven (S) | | | | | | |
| Bifenthrin | --- | 180 | 3.3 (0.6) | 3.1a* | 4.7 (3) | 2.4-3.8 |
| Bifenthrin+PBO | --- | 140 | 2.4 (0.5) | 3.9 | 1.2 (4) | 2.7-5.6 |
| Bifenthrin+DEM | --- | 140 | 1.7 (0.3) | 5.7 | 3.7 (4) | 3.7-9.0 |
| Bifenthrin+DEF | 1.4 | 140 | 1.7 (0.3) | 2.2 | 1.9 (4) | 1.4-3.3 |
| Norwich (R) | | | | | | |
| Bifenthrin | 8.2 | 140 | 1.7 (0.3) | 25.3b | 5.7 (4) | 14.9-48.5 |
| Bifenthrin+PBO | 5.2• | 140 | 1.1 (0.3) | 4.9‡ | 2.8 (4) | 1.7-8.8 |
| Bifenthrin+DEM | 2.8 | 140 | 0.9 (0.2) | 8.7 | 5.1 (4) | 3.1-16.8 |
| Bifenthrin+DEF | --- | 210 | 1.4 (0.2) | 26.9 | 4.3 (4) | 18.6-40.5 |
| Stamford (R) | | | | | | |
| Bifenthrin | 28.1 | 216 | 3.5 (0.9) | 87.1c | 3.2 (6) | 66.3-126 |
| Bifenthrin+PBO | 5.9• | 216 | 2.3 (0.3) | 14.6‡ | 8.3 (5) | 10.6-19.4 |
| Bifenthrin+DEM | 3.2• | 210 | 2.1 (0.4) | 27.4‡ | 3.7 (5) | 18.8-37.9 |
| Bifenthrin+DEF | 1.5 | 216 | 1.7 (0.3) | 56.6 | 10.5 (5) | 38.9-85.3 |
| Hartford (R) | | | | | | |
| Bifenthrin | 205.7 | 320 | 1.9 (0.3) | 637.7d | 9.7 (13) | 467.9-823.9 |
| Bifenthrin+PBO | 4.5• | 220 | 1.4 (0.2) | 143.3‡ | 4.4 (8) | 84.6-223.7 |
| Bifenthrin+DEM | 2.5• | 220 | 1.0 (0.2) | 260.1‡ | 6.7 (8) | 144.1-456.8 |
| Bifenthrin+DEF | 3.2• | 220 | 1.5 (0.3) | 199.3‡ | 6.1 (8) | 108.8-309.1 |

† Resistant Ratio (RR) = $LD_{50}$ resistant population ÷ $LD_{50}$ most susceptible population.
° Synergist Ratio (SR) = for each population, $LD_{50}$ bifenthrin alone ÷ $LD_{50}$ bifenthrin + synergist, either PBO, DEM or DEF.
¶ L.R. chi-square goodness-of-fit values. Tabular values at P = 0.05 for 3 df = 7.82, 4 df = 9.49, 5 df =11.07, 6 df = 12.59, 8 df = 15.51 and 13 df = 22.36.
* $LD_{50s}$ for bifenthrin alone compared among the four populations followed by different letters are significantly different; significant difference is based on a failure of 95% fiducial limit overlap.
‡ $LD_{50}$ for bifenthrin with the synergists is significantly different/lower than the $LD_{50}$ for bifenthrin alone within separate populations; significant difference is based on a failure of 95% fiducial limit overlap.
• Significant reduction in $LD_{50}$ between bifenthrin alone and birenthrin + synergist within separate populations; significant difference is based on a failure of 95% fiducial limit overlap.Type= S-susceptible; R-resistant

Table 1 - 07. Efficacy of *Metarhizium anisopliae,* Arena and Conserve for control of annual bluegrass weevil larvae in a golf course fairway, New Haven, Conn., 2007.

| Treatment | Rate (CFU's or lbs. ai/acre) | Timing | X ± SEM[a] live larvae / 0.28 ft$^2$ June 11 | Percent Control |
|---|---|---|---|---|
| *M. anisopliae* G | 1E13 | 29 May | 13.0 ± 4.4ab | 36 |
| *M. anisopliae* G | 3E13 | 29 May | 16.5 ± 12.5bcd | 19 |
| *M. anisopliae* L | 1E13 | 29 May | 11.0 ± 4.1abc | 46 |
| *M. anisopliae* L | 3E13 | 29 May | 12.0 ± 7.4abc | 41 |
| *M. anisopliae* L + Arena | 1E13 + 0.4 lbs | 29 May | 1.0 ± 0.7d | 95 |
| *M. anisopliae* G + Arena | 1E13 + 0.4 lbs | 29 May | 2.5 ± 1.2cd | 88 |
| Conserve | 0.4 lbs | 29 May | 1.3 ± 0.9d | 94 |
| Control | --- | | 20.3 ± 5.6a | -- |

$F = 3.18$, df = 7,21 $P < 0.01$

[a]Means in the same column followed by the same letter are not significantly different, ($P$ = 0.05, LSD test).

DATES OF APPLICATION: 29 May 2007. Rainfall post treatment to evaluation date = "; randomized complete block design, four replicates, plot size = 32.3 ft$^2$; application water was equivalent to 2 gal./1,000 ft$^2$, the turf consisted of annual bluegrass; thatch = 0.25"; texture = sandy loam. Treatments were evaluated by taking ten 2.25" diameter cores per plot 13 days after treatment (DAT) and extracting live larvae by hand.

DATA RESULTS AND ANALYSIS: The treatments with Arena and the Conserve were significantly different from the control. Since the other *M. anisopliae* treatments at the same or higher rates as those with the Arena treatments were not significantly different from the control, it is likely that the Arena is the product which provided significant control.

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Table 2 - 07. Efficacy of Provaunt, Allectus and Talstar for control of annual bluegrass weevil larvae in a golf course fairway, Hartford, Conn., 2007.

| Treatment | Rate (lbs. ai/acre) | Timing | $\overline{X} \pm$ SEM[a] live larvae / 0.55 ft$^2$ 4 June | Percent Control |
|---|---|---|---|---|
| Provaunt 30WDG | 0.225 | 3 May | 11.0 ± 2.6b | 43 |
| Provaunt 30WDG | 0.225/0.225 | 3 & 23 May | 6.0 ± 1.3bc | 69 |
| Provaunt 30WDG | 0.225 | 23 May | 9.3 ± 2.8bc | 52 |
| Allectus SC | 0.144 imid./0.1 bifenthrin | 3 May | 2.8 ± 1.0c | 85 |
| Allectus SC | 0.2 imid./0.16 bifenthrin | 3 May | 5.8 ± 1.9bc | 70 |
| Allectus G | 0.125 imid./0.1 bifenthrin | 3 May | 3.8 ± 1.4bc | 80 |
| Allectus G | 0.2 imid./0.16 bifenthrin | 3 May | 6.0 ± 1.8bc | 69 |
| Talstar 0.67SC | 0.1 | 3 May | 7.8 ± 2.5bc | 60 |
| Control | --- | | 19.3 ± 1.8a | -- |

$F = 9.48$, df = 8,24 $P < 0.01$

[a]Means in the same column followed by the same letter are not significantly different, ($P = 0.05$, Tukey's HSD test).

DATES OF APPLICATION: 3 May 2007. Rainfall post treatment to evaluation date = 4.47"; randomized complete block design, four replicates, plot size = 32.3 ft$^2$; application water was equivalent to 2 gal./1,000 ft$^2$, the turf consisted of annual bluegrass; thatch = 0.25"; texture = sandy loam. Treatments were evaluated by taking twenty 2.25" cores per plot 32 days after treatment (DAT) and extracting live larvae by use of a modified Tullgren "funnel".

DATA RESULTS AND ANALYSIS: All treatments provided significant control of annual bluegrass weevils. The Provaunt treatments appear to be more effective when applied to target larvae (May 23).

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Table 3 - 08. Efficacy of Conserve, Aloft, and Dylox, for curative control of annual bluegrass weevil larvae in a golf course fairway, Stamford, Conn., 2008.

| Treatment | Rate (lbs. ai/acre) | Timing | $\overline{X} \pm$ SEM live larvae / 0.5 $ft^2$ 13 June | Percent Control |
|---|---|---|---|---|
| Conserve SC | 0.4 | 6 June | 29.5 ± 8.7b | 62 |
| Aloft SC | 2.5lbs clothianidin/ 1.26lbs bifenthrin | 6 June | 10.3 ± 2.1c | 87 |
| Dylox 80S | 8.1 | 6 June | 3.3 ± 0.9c | 96 |
| Control | --- | | 77.0 ± 2.1a | -- |

$F = 44.15$, df = 5,15 $P < 0.01$

[a]Means in the same column followed by the same letter are not significantly different, ($P = 0.05$, LSD).

DATES OF APPLICATION: 6 June 2008. Rainfall post treatment to evaluation date = 0.34"; randomized complete block design, four replicates, plot size = 32.3 $ft^2$; application water was equivalent to 2 gal./1,000 $ft^2$, the turf consisted of annual bluegrass; thatch = 0.25"; texture = sandy loam. Treatments were evaluated by taking five 4.25" cores per plot 8 days after treatment (DAT) and extracting live larvae with forceps by hand.

DATA RESULTS AND ANALYSIS: The Dylox treatment was the most effective, but not significantly different from Aloft. Conserve was significantly better than the control but not as good as the other four treatments.

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Table 4-07. Efficacy of Meridian and Merit applied 14 June for control of Oriental beetles, *Anomala orientalis,* and Asiatic garden beetles, *Maladera castanea*, infesting a 50:50 fine fescue – perennial ryegrass lawn, Kingston, RI, 2007.

| Treatment and (lbs.a.i.) /acre | Timing | $\overline{X} \pm$ SEM OB larvae/ 4.5 $ft^2$ Sept. 19 | $\overline{X} \pm$ SEM AGB larvae/ 4.5 $ft^2$ Sept. 19 |
|---|---|---|---|
| Meridian 25WG (0.2) | 14 June | 1.5 ± 1.2b | 8.8 ± 3.3c |
| Meridian 25WG (0.26) | 14 June | 0.0 ± 0.0b | 4.0 ± 1.2c |
| Meridian 0.33G (0.2) | 14 June | 0.5 ± 0.5b | 8.0 ± 1.5c |
| Meridian 0.33G (0.26) | 14 June | 1.5 ± 0.6b | 10.5 ± 1.0bc |
| Merit 75WP (0.3) | 14 June | 0.5 ± 0.5b | 19.8 ± 6.9ab |
| Control | --- | 12.3 ± 3.8a | 25.8 ± 2.7 |

Oriental beetle: $F = 7.56$ df = 5,15 $P < 0.01$; Asiatic garden beetle: $F = 5.20$ df = 5,15 $P < 0.01$

[a]Means in the same column followed by the same letter are not significantly different, ($P = 0.05$, LSD).

DATE OF APPLICATION: Granular treatments were applied 14 June from portion cups; liquid treatments were applied in 121 ml water/16 $ft^2$ (= 80 gal/acre). All treatments received 0.2" post-treatment irrigation water; rainfall from 14 June to evaluation = 6.71"; randomized complete block design, four replicates, plot size = 16 $ft^2$, 50:50 mixture of fine fescue and perennial ryegrass, thatch = 0.25", soil pH = 5.2, texture = sandy loam. Treatments were rated 19 September which was 97 DAT (days after treatment).

DATA RESULTS AND ANALYSIS: All treatments provided significant control of oriental beetles. Only the Meridian treatments provided significant control of Asiatic garden beetle larvae.

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Table 5-07. Efficacy of Acelepryn, Meridian and Merit applied 14 June for control of Oriental beetles, *Anomala orientalis,* and Asiatic garden beetles, *Maladera castanea*, infesting a 50:50 fine fescue – perennial ryegrass lawn, Kingston, RI, 2007

| Treatment and (lbs.a.i.) /acre | Timing | $\overline{X} \pm$ SEM OB larvae/ 4.5 $ft^2$ Sept. 19 | $\overline{X} \pm$ SEM AGB larvae/ 4.5 $ft^2$ Sept. 19 |
|---|---|---|---|
| Acelepryn (0.104) | 14 June | 2.8 ± 1.3b | 1.3 ± 0.6b |
| Acelepryn (0.157) | 14 June | 1.8 ± 1.0b | 0.0 ± 0.0b |
| Acelepryn (0.209) | 14 June | 0.0 ± 0.0b | 0.0 ± 0.0b |
| Meridian 25WG (0.198) | 14 June | 1.5 ± 1.2b | 8.8 ± 3.3b |
| Meridian 25WG (0.26) | 14 June | 0.0 ± 0.0b | 4.0 ± 1.2b |
| Merit 75WP (0.3) | 14 June | 0.5 ± 0.5b | 19.8 ± 6.9a |
| Control | --- | 12.3 ± 3.8a | 25.8 ± 2.7 |

Oriental beetle: $F = 5.80$ df = 6,17 $P < 0.01$; Asiatic garden beetle: $F = 9.34$ df = 6,17 $P < 0.01$

[a]Means in the same column followed by the same letter are not significantly different, ($P = 0.05$, LSD).

DATE OF APPLICATION: Treatments were applied 14 June in 121 ml water/16 $ft^2$ (= 80 gal/acre). All treatments received 0.2" post-treatment irrigation water; rainfall from 14 June to evaluation = 6.71"; randomized complete block design, four replicates, plot size = 16 $ft^2$, 50:50 mixture of fine fescue and perennial ryegrass, thatch = 0.25", soil pH = 5.2, texture = sandy loam. Treatments were rated 19 September which was 97 DAT (days after treatment).

DATA RESULTS AND ANALYSIS: All treatments provided significant control of oriental beetles. All treatments except the Merit treatment provided significant control of Asiatic garden beetle larvae.

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Table 6-07. Efficacy of VBC-60117 FC, VBC-60138 G, VBC-60139 G (*Bacillus thuringiensis japonensis*)and Merit applied 11 July for control of Oriental beetles, *Anomala orientalis,* and Asiatic garden beetles, *Maladera castanea*, infesting a 50:50 fine fescue – perennial ryegrass lawn, Kingston, RI, 2007

| Treatment and (lbs.a.i./acre or g a.i./ha) | Timing | $\overline{X} \pm$ SEM OB larvae/ 4.5 $ft^2$ Sept. 19 | $\overline{X} \pm$ SEM AGB larvae/ 4.5 $ft^2$ Sept. 19 |
|---|---|---|---|
| VBC-60117 FC (430 g) | 11 July | 3.0 ± 2.0b | 19.0 ± 2.9 |
| VBC-60138 G (430 g) | 11 July | 3.3 ± 2.1b | 11.0 ± 3.7 |
| VBC-60139 G (430 g) | 11 July | 4.5 ± 1.6b | 18.5 ± 4.2 |
| Merit 75WP (0.3 lbs) | 11 July | 0.5 ± 0.5b | 19.8 ± 6.9 |
| Control | --- | 12.3 ± 3.8a | 25.8 ± 2.7 |

Oriental beetle: $F = 4.25$ df = 4,12 $P = 0.02$; Asiatic garden beetle: $F = 1.39$ df = 4,12 $P = 0.30$

[a]Means in the same column followed by the same letter are not significantly different, ($P = 0.05$, LSD).

DATE OF APPLICATION: Treatments were applied 11 July in 121 ml water/16 $ft^2$ (= 80 gal/acre). All treatments received 0.2" post-treatment irrigation water; rainfall from 11 July to evaluation = 5.02"; randomized complete block design, four replicates, plot size = 16 $ft^2$, 50:50 mixture of fine fescue and perennial ryegrass, thatch = 0.25", soil pH = 5.2, texture = sandy loam. Treatments were rated 19 September which was 70 DAT (days after treatment).

DATA RESULTS AND ANALYSIS: All treatments provided significant control of oriental beetles. Due to the droughty conditions in 2007, eggs may not have hatched as early as in most years and the VBC treatments may have been applied earlier than optimal timing. None of the treatments provided significant control of Asiatic garden beetle larvae.

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Table 7-08. Efficacy of treatments applied to 'L93' creeping bentgrass turf for control of fall armyworm larvae, *Spodoptera frugiperda*, Kingston, RI, 2008.

| Treatment | Rate (lbs. ai/acre) | $\overline{X} \pm$ SEM[a] live larvae/0.349 ft$^2$ 27 July (90 DAT) | Percent Control (90 DAT) |
|---|---|---|---|
| Acelepryn 1.67SC | 0.026 | 0.0 ± 0.0 | 100 |
| Acelepryn 1.67SC | 0.052 | 0.0 ± 0.0 | 100 |
| Acelepryn 1.67SC | 0.104 | 0.0 ± 0.0 | 100 |
| Acelepryn 1.67SC | 0.209 | 0.0 ± 0.0 | 100 |
| Merit 75WP | 0.3 | 6.0 ± 1.8 | 0 |
| Control | --- | 5.8 ± 1.1 | --- |

$F = 11.6$, df = 5, 15 $P < 0.01$

[a]Means in the same column followed by the same letter are not significantly different, ($P$ = 0.05, LSD).

DATE OF APPLICATION: Treatments were applied 30 April 2008. Products were applied with a $CO_2$ sprayer at 40 psi using a nozzle which produced a solid cone spray pattern and 30 ml/4ft$^2$ (= 2 gal./1,000 ft$^2$). Post-treatment irrigation = 0.2". Rainfall/irrigation post treatment to evaluation date = TBD"; randomized complete block design, four replicates, plot size = 4 ft$^2$; one 8" diam. PVC ring was placed in each 4 ft$^2$ plot and infested with 100 fall armyworm eggs applied on 17 July; the turf consisted of 'L93' creeping bentgrass cut at 0.25". Treatments were evaluated by applying Lemon Joy at a rate of 1 oz/1 gal water drenching the 0.349 ft$^2$ (one PVC ring) with ca. 0.1 gallon of water on 29 July and collecting armyworms as they emerged.

DATA RESULTS AND ANALYSIS: All Acelepryn treatments provided 100% control of larvae ninety days after treatment.

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## *NTEP-URI Tall Fescue Variety Trial*

Dr. Rebecca Brown, Turfgrass Breeding and Genetics

The trial contains 113 official NTEP entries plus additional URI-only entries. It was seeded in September 2006; this is the second summer for this trial. It is maintained as a moderate-input lawn mowed at 3" with a rotary mower, fertilized in May and September with 1 lb N/1000 sq. ft. each time, and irrigated only to prevent dormancy. The trial was sprayed this spring to control mouse-ear chickweed; crabgrass control has not been necessary.

The trial is evaluated for turf quality monthly during the growing season. Other data presented here include spring green-up, genetic color, and red thread tolerance. The turf quality of the entries is generally good, with few significant differences except for the standard variety Kentucky-31. Kentucky-31 has the best spring green-up, but the varieties Bullseye, Speedway, Millenium SRP, Plato, Silverado, Rembrandt, Taos, and Grande II were nearly as good and all had much better turf quality. Firenza, Rebel IV, Tulsa III, Rembrandt, Turbo and Skyline had above-average red threard tolerance, as did many of the experimentals. However, the variability between replication was high for red thread, so the statistical differences are small. Red thread tolerance did improve overall turf quality. Many of the experimentals are darker green than the current varieties, so we can look forward to improvements in color for tall fescue. Overall the newer turf-type tall fescues are an excellent choice for full-sun lawns in southern New England as they provide quality turf with many fewer inputs than Kentucky bluegrass require.

### *2006 NTEP Tall Fescue Entries and Sponsors*

| Entry | Name | Sponsor | Entry | Name | Sponsor |
|---|---|---|---|---|---|
| 1 | Ky-31 | Standard Entry | 67 | RAD-TF17 | Radix Research |
| 2 | Z-2000 | Z-Seeds | 68 | PSG-85QR | Pickseed Genetics |
| 3 | DP 50-9407 | DLF Trifolium A/S | 69 | STR-8GRQR | Seed Research of Oregon |
| 4 | DP 50-9411 | DLF Trifolium A/S | 70 | PSG-82BR | Pickseed Genetics |
| 5 | DP 50-9440 | DLF Trifolium A/S | 71 | K06-WA | The Scotts Company |
| 6 | TG 50-9460 | DLF Trifolium A/S | 72 | GO-1BFD | Grassland Oregon |
| 7 | Plato | Olsen Seed Company | 73 | SR 8650 (STR-8LMM) | Seed Research of Oregon |
| 8 | Lindbergh | Olsen Seed Company | 74 | STR-8BB5 | Seed Research of Oregon |
| 9 | Aristotle | Olsen Seed Company | 75 | Tulsa III | Seed Research of Oregon |
| 10 | Einstein | Olsen Seed Company | 76 | PSG-RNDR | Smith Seed Services |
| 11 | Silverado | Standard Entry | 77 | PSG-TTRH | Smith Seed Services |
| 12 | Monet (LTP-610 CL) | Lebanon Seaboard Corp. | 78 | Speedway (STR-8BPDX) | Seed Research of Oregon |
| 13 | Cezanne RZ (LTP-CRL) | Lebanon Seaboard Corp. | 79 | Rembrandt | Standard Entry |
| 14 | Van Gogh (LTP-RK2) | Lebanon Seaboard Corp. | 80 | JT-41 | Jacklin Seed by Simplot |
| 15 | ATF 1247 | Ampac Seed Company | 81 | JT-36 | Jacklin Seed by Simplot |
| 16 | RKCL | Ampac Seed Company | 82 | JT-45 | Jacklin Seed by Simplot |
| 17 | RK 4 | Pennington Seed Company | 83 | JT-42 | Jacklin Seed by Simplot |
| 18 | RK 5 | Pennington Seed Company | 84 | JT-33 | Jacklin Seed by Simplot |
| 19 | GE-1 | Pennington Seed Company | 85 | BGR-TF1 | Berger Seed Company |
| 20 | SC-1 | Lewis Seed Company | 86 | BGR-TF2 | Berger Seed Company |
| 21 | ATF 1328 | Lewis Seed Company | 87 | PST-5HP | Pure-Seed Testing, Inc. |
| 22 | Skyline | Burlingham Seeds | 88 | PST-5WMD | Pure-Seed Testing, Inc. |
| 23 | Hemi | Burlingham Seeds | 89 | AST 7002 | Allied Seed LLC |
| 24 | Burl-TF8 | Burlingham Seeds | 90 | AST 7001 | Allied Seed LLC |
| 25 | Turbo | Burlingham Seeds | 91 | CS-TF1 | Columbia Seeds |
| 26 | Bullseye | Burlingham Seeds | 92 | KZ-1 | KZ Seeds |

| Entry | Name | Sponsor |
|---|---|---|
| 27 | IS-TF-152 | Ampac Seed Company |
| 28 | IS-TF-138 | Ampac Seed Company |
| 29 | IS-TF-147 | DLF International Seeds |
| 30 | IS-TF-128 | DLF International Seeds |
| 31 | IS-TF-151 | Columbia Seeds |
| 32 | IS-TF-135 | DLF International Seeds |
| 33 | MVS-TF-158 | Mountain View Seeds |
| 34 | IS-TF-159 | Grassland Oregon |
| 35 | IS-TF-153 | DLF International Seeds |
| 36 | IS-TF-154 | DLF International Seeds |
| 37 | IS-TF-161 | DLF International Seeds |
| 38 | MVS-341 | Mountain View Seeds |
| 39 | MVS-1107 | Mountain View Seeds |
| 40 | MVS-BB-1 | Mountain View Seeds |
| 41 | MVS-MST | Mountain View Seeds |
| 42 | M4 | Pickseed West, Inc. |
| 43 | 0312 | Pickseed West, Inc. |
| 44 | PSG-TTST | Smith Seed Services |
| 45 | Col-1 | Pickseed West, Inc. |
| 46 | J-130 | Pickseed West, Inc. |
| 47 | Col-M | Pickseed West, Inc. |
| 48 | Col-J | Pickseed West, Inc. |
| 49 | Hunter | LESCO, Inc. |
| 50 | Biltmore | LESCO, Inc. |
| 51 | Padre | LESCO, Inc. |
| 52 | Magellan | LESCO, Inc. |
| 53 | NA-BT-1 | LESCO, Inc. |
| 54 | NA-SS | LESCO, Inc. |
| 55 | RP 2 | ProSeeds Marketing |
| 56 | CE 1 | ProSeeds Marketing |
| 57 | RK 6 | ProSeeds Marketing |
| 58 | ATM | ProSeeds Marketing |
| 59 | SH 3 | ProSeeds Marketing |
| 60 | BAR Fa 6363 | Barenbrug USA |
| 61 | BAR Fa 6253 | Barenbrug USA |
| 62 | RP 3 | Columbia Seeds |
| 63 | Tahoe II | Columbia Seeds |
| 64 | 06-WALK | Oregro Seeds |
| 65 | Escalade | Oregro Seeds |
| 66 | 06-DUST | Oregro Seeds |
| 93 | LS-11 | LESCO, Inc. |
| 94 | LS-06 | LESCO, Inc. |
| 95 | DKS | Smith Seed Services |
| 96 | LS-03 | LESCO, Inc. |
| 97 | GWTF | Grassland Oregon |
| 98 | KZ-2 | KZ Seeds |
| 99 | AST-2 | Allied Seed LLC |
| 100 | AST-3 | Allied Seed LLC |
| 101 | RNP | Pennington Seed Company |
| 102 | AST-4 | Allied Seed LLC |
| 103 | AST 7003 | Allied Seed LLC |
| 104 | AST-1 | Allied Seed LLC |
| 105 | J-140 | Pickseed West, Inc. |
| 106 | ATF-1199 | Pennington Seed Company |
| 107 | Justice | Standard Entry |
| 108 | Rebel IV | Standard Entry |
| 109 | Millennium SRP | Turf Merchants, Inc. |
| 110 | RK-1 | Turf Merchants, Inc. |
| 111 | Rhambler | Turf Merchants, Inc. |
| 112 | Firenza | Integra Seeds |
| 113 | Falcon IV | Standard Entry |
| 114 | NA-TDDM | NovelAG |
| 115 | Sheridan II | NovelAG |
| 116 | Sideshooter | NovelAG |
| 117 | PST-5MAC | Pure-Seed Testing, Inc. |
| 118 | PST-R5B4 | Pure-Seed Testing, Inc. |
| 119 | PST-5R56 | Pure-Seed Testing, Inc. |
| 120 | PST-R5EP | Pure-Seed Testing, Inc. |
| 121 | PST-5BGR-06 | Pure-Seed Testing, Inc. |
| 122 | PST-5DVD | Pure-Seed Testing, Inc. |
| 123 | Montana | Cascade/J. Green |
| 124 | Tombstone | Cascade/J. Green |
| 125 | Taos | Cascade/J. Green |
| 126 | Dakota | Cascade/J. Green |
| 127 | Grande II | Seed Research of Oregon |
| 128 | STR 86QR | Seed Research of Oregon |
| 129 | Regiment II | Seed Research of Oregon |
| 130 | SR 8550 | Seed Research of Oregon |
| 131 | PST-5SIS | Pure-Seed Testing, Inc. |

*2008 Data*

| Entry Name | Spring green-up | April Quality | May Quality | Red Thread | June Quality | July Quality | August Quality | Genetic color | Season quality |
|---|---|---|---|---|---|---|---|---|---|
| Ky-31 | 7.7 | 2.0 | 3.0 | 6.0 | 2.0 | 3.0 | 3.3 | 1.0 | 2.7 |
| Z-2000 | 5.7 | 5.3 | 6.0 | 5.0 | 6.3 | 7.0 | 7.7 | 7.0 | 6.5 |
| DP 50-9407 | 5.0 | 5.3 | 4.3 | 4.3 | 4.7 | 6.3 | 7.0 | 4.7 | 5.5 |
| DP 50-9411 | 5.0 | 5.7 | 5.7 | 5.3 | 5.3 | 5.3 | 7.3 | 8.0 | 5.9 |
| DP 50-9440 | 4.0 | 5.0 | 5.7 | 5.0 | 5.0 | 5.3 | 6.3 | 6.3 | 5.5 |
| TG 50-9460 | 5.7 | 6.0 | 6.3 | 5.3 | 5.7 | 6.3 | 7.3 | 4.3 | 6.3 |
| Plato | 6.0 | 5.0 | 5.3 | 4.3 | 4.7 | 4.3 | 5.7 | 5.0 | 5.0 |
| Lindbergh | 5.3 | 5.7 | 5.3 | 3.7 | 4.3 | 4.0 | 5.0 | 5.3 | 4.9 |
| Aristotle | 5.7 | 5.3 | 4.7 | 5.0 | 4.3 | 4.3 | 6.0 | 4.0 | 4.9 |
| Einstein | 5.0 | 5.0 | 4.3 | 4.3 | 4.3 | 4.3 | 5.3 | 4.0 | 4.7 |
| Silverado | 6.0 | 3.7 | 4.7 | 3.7 | 4.3 | 4.3 | 4.7 | 2.7 | 4.3 |
| Monet (LTP-610 CL) | 4.3 | 4.7 | 6.0 | 4.3 | 5.0 | 5.0 | 6.0 | 5.0 | 5.3 |
| Cezanne Rz (LTP-CRL) | 4.3 | 5.0 | 5.7 | 5.0 | 4.3 | 5.7 | 6.0 | 5.3 | 5.3 |
| Van Gogh (LTP-RK2) | 4.7 | 5.3 | 5.0 | 5.3 | 4.7 | 4.3 | 6.7 | 5.3 | 5.2 |
| ATF 1247 | 5.3 | 6.0 | 5.7 | 5.7 | 5.7 | 5.3 | 5.7 | 6.7 | 5.7 |
| RKCL | 4.3 | 4.3 | 6.0 | 6.0 | 5.7 | 5.7 | 6.3 | 6.3 | 5.6 |
| RK 4 | 5.0 | 6.0 | 5.7 | 5.0 | 5.7 | 4.3 | 7.0 | 6.0 | 5.7 |
| RK 5 | 4.7 | 4.3 | 5.0 | 5.0 | 5.7 | 5.7 | 7.3 | 5.0 | 5.6 |
| GE-1 | 5.7 | 5.7 | 5.0 | 6.3 | 5.7 | 5.0 | 6.3 | 6.3 | 5.5 |
| SC-1 | 5.3 | 5.7 | 6.0 | 4.3 | 5.3 | 5.7 | 7.7 | 5.7 | 6.1 |
| ATF 1328 | 4.3 | 5.7 | 5.7 | 6.0 | 5.0 | 5.3 | 7.0 | 7.0 | 5.7 |
| Skyline | 4.7 | 5.7 | 6.0 | 6.0 | 6.0 | 6.3 | 7.0 | 6.3 | 6.2 |
| Hemi | 4.0 | 4.7 | 6.7 | 5.7 | 5.3 | 6.0 | 6.7 | 6.3 | 5.9 |
| Burl-TF8 | 4.7 | 6.3 | 5.3 | 6.3 | 5.0 | 6.0 | 6.7 | 7.3 | 5.9 |
| Turbo | 5.0 | 6.3 | 6.3 | 6.0 | 6.7 | 6.3 | 8.0 | 7.0 | 6.7 |
| Bullseye | 6.3 | 6.0 | 6.7 | 5.7 | 5.0 | 5.3 | 7.0 | 6.3 | 6.0 |
| IS-TF-152 | 3.0 | 5.3 | 6.0 | 5.3 | 5.7 | 6.3 | 7.7 | 7.7 | 6.2 |
| IS-TF-138 | 3.3 | 4.3 | 6.0 | 6.0 | 6.3 | 7.7 | 7.7 | 8.3 | 6.4 |
| IS-TF-147 | 3.3 | 4.3 | 4.7 | 5.3 | 4.7 | 5.3 | 7.0 | 6.3 | 5.2 |
| IS-TF-128 | 4.0 | 5.3 | 6.3 | 4.7 | 6.0 | 6.3 | 8.3 | 6.0 | 6.5 |
| IS-TF-151 | 4.7 | 4.7 | 5.7 | 7.7 | 6.0 | 6.0 | 7.3 | 7.7 | 5.9 |
| IS-TF-135 | 3.7 | 4.3 | 6.3 | 5.0 | 6.3 | 4.0 | 5.3 | 8.3 | 5.3 |
| MVS-TF-158 | 3.3 | 5.3 | 5.7 | 5.7 | 6.0 | 6.0 | 6.3 | 8.3 | 5.9 |
| IS-TF-159 | 4.7 | 4.3 | 6.0 | 4.7 | 5.7 | 6.0 | 6.7 | 8.0 | 5.7 |
| IS-TF-153 | 5.0 | 5.0 | 5.3 | 6.3 | 5.7 | 5.7 | 8.0 | 7.0 | 5.9 |
| IS-TF-154 | 5.3 | 5.3 | 6.0 | 5.3 | 5.7 | 6.0 | 7.0 | 5.3 | 6.0 |
| IS-TF-161 | 4.3 | 5.3 | 5.0 | 5.3 | 5.7 | 5.7 | 5.7 | 7.3 | 5.5 |
| MVS-341 | 4.7 | 5.0 | 6.0 | 6.3 | 5.0 | 5.7 | 6.3 | 6.3 | 5.6 |
| MVS-1107 | 5.0 | 4.3 | 4.7 | 4.7 | 5.0 | 5.3 | 6.7 | 4.3 | 5.2 |
| MVS-BB-1 | 5.0 | 5.7 | 5.7 | 5.3 | 5.3 | 5.3 | 7.3 | 4.7 | 5.9 |
| MVS-MST | 4.3 | 5.7 | 6.0 | 5.7 | 5.7 | 5.3 | 7.7 | 6.0 | 6.1 |
| M4 | 4.3 | 5.0 | 5.3 | 6.0 | 5.7 | 5.7 | 8.0 | 6.7 | 5.9 |
| 312 | 4.7 | 5.7 | 5.3 | 3.3 | 5.3 | 3.3 | 5.0 | 7.0 | 4.9 |
| PSG-TTST | 5.0 | 5.0 | 5.0 | 6.0 | 5.0 | 5.7 | 7.0 | 3.0 | 5.5 |
| Col-1 | 4.3 | 5.0 | 5.3 | 5.3 | 5.3 | 4.7 | 6.0 | 7.3 | 5.3 |

| Entry Name | Spring green-up | April Quality | May Quality | Red Thread | June Quality | July Quality | August Quality | Genetic color | Season quality |
|---|---|---|---|---|---|---|---|---|---|
| J-130 | 4.3 | 5.7 | 5.3 | 5.0 | 6.3 | 5.7 | 6.0 | 6.3 | 5.8 |
| Col-M | 4.3 | 5.7 | 5.7 | 5.7 | 5.3 | 5.0 | 5.7 | 7.3 | 5.5 |
| Col-J | 5.0 | 6.0 | 5.7 | 4.7 | 5.7 | 4.7 | 5.3 | 6.7 | 5.5 |
| Hunter | 4.0 | 6.7 | 5.0 | 4.0 | 5.3 | 4.0 | 4.7 | 7.3 | 5.1 |
| Biltmore | 5.3 | 5.7 | 5.3 | 3.7 | 4.7 | 4.3 | 5.0 | 5.7 | 5.0 |
| Padre | 5.7 | 5.3 | 5.7 | 5.0 | 5.0 | 4.7 | 5.7 | 5.7 | 5.3 |
| Magellan | 5.3 | 6.0 | 5.0 | 4.7 | 4.7 | 5.3 | 7.0 | 5.0 | 5.6 |
| NA-BT-1 | 5.3 | 5.3 | 6.3 | 6.0 | 5.7 | 6.7 | 7.7 | 6.3 | 6.3 |
| NA-SS | 4.7 | 6.0 | 6.0 | 6.3 | 6.0 | 6.0 | 7.0 | 7.3 | 6.2 |
| RP 2 | 5.7 | 5.3 | 6.0 | 5.7 | 5.7 | 6.0 | 7.3 | 5.7 | 6.1 |
| CE 1 | 6.3 | 5.0 | 5.0 | 5.7 | 4.7 | 5.7 | 6.7 | 4.7 | 5.4 |
| RK 6 | 4.7 | 5.7 | 6.0 | 4.3 | 5.7 | 5.7 | 7.0 | 6.3 | 6.0 |
| ATM | 5.7 | 5.0 | 5.7 | 6.7 | 5.3 | 6.3 | 7.3 | 5.7 | 5.9 |
| SH 3 | 6.0 | 5.7 | 6.0 | 5.0 | 5.3 | 5.0 | 6.7 | 5.7 | 5.7 |
| BAR Fa 6363 | 5.3 | 5.7 | 5.7 | 6.0 | 4.7 | 5.3 | 5.3 | 5.7 | 5.3 |
| BAR Fa 6253 | 5.7 | 5.3 | 6.0 | 5.3 | 5.0 | 5.7 | 6.3 | 6.0 | 5.7 |
| RP 3 | 4.7 | 6.3 | 6.0 | 8.0 | 6.3 | 7.0 | 7.3 | 6.0 | 6.6 |
| Tahoe II | 4.3 | 5.3 | 5.7 | 4.3 | 4.3 | 4.7 | 6.7 | 6.7 | 5.3 |
| 06-WALK | 4.7 | 4.7 | 5.3 | 4.7 | 5.3 | 5.3 | 5.0 | 4.7 | 5.1 |
| Escalade | 5.0 | 5.0 | 4.7 | 5.3 | 4.7 | 5.7 | 6.3 | 4.3 | 5.3 |
| 06-DUST | 5.3 | 5.3 | 6.0 | 4.0 | 5.0 | 5.0 | 5.7 | 5.0 | 5.4 |
| RAD-TF17 | 6.0 | 6.3 | 6.3 | 4.7 | 4.7 | 4.7 | 6.0 | 6.0 | 5.6 |
| PSG-85QR | 5.0 | 5.7 | 6.7 | 5.0 | 4.7 | 5.0 | 5.3 | 6.3 | 5.5 |
| STR-8GRQR | 5.0 | 5.7 | 6.0 | 5.0 | 5.0 | 5.3 | 6.0 | 4.3 | 5.6 |
| PSG-82BR | 4.7 | 5.3 | 4.7 | 5.7 | 5.3 | 5.7 | 6.0 | 4.7 | 5.4 |
| K06-WA | 5.3 | 5.7 | 5.7 | 5.0 | 5.7 | 5.0 | 8.0 | 6.0 | 6.0 |
| GO-1BFD | 4.3 | 5.0 | 4.3 | 5.0 | 5.0 | 5.7 | 6.7 | 2.7 | 5.3 |
| SR 8650 (STR-8LMM) | 4.0 | 5.7 | 6.0 | 6.0 | 5.7 | 6.0 | 6.3 | 5.3 | 5.9 |
| STR-8BB5 | 4.3 | 6.0 | 6.0 | 6.0 | 5.0 | 6.0 | 7.7 | 6.0 | 6.1 |
| Tulsa III | 4.7 | 6.0 | 6.3 | 6.3 | 6.0 | 6.0 | 7.3 | 6.3 | 6.3 |
| PSG-RNDR | 4.3 | 5.3 | 6.3 | 4.0 | 4.7 | 4.3 | 4.7 | 6.3 | 5.1 |
| PSG-TTRH | 3.7 | 5.7 | 5.7 | 3.3 | 4.3 | 4.7 | 5.3 | 5.3 | 5.1 |
| Speedway (STR-8BPDX) | 6.3 | 5.3 | 6.3 | 5.7 | 5.3 | 5.7 | 6.7 | 4.7 | 5.9 |
| Rembrandt | 6.0 | 5.7 | 5.3 | 6.3 | 5.7 | 7.0 | 6.7 | 3.3 | 6.1 |
| JT-41 | 3.7 | 4.7 | 5.3 | 4.0 | 4.7 | 5.0 | 6.3 | 7.3 | 5.2 |
| JT-36 | 3.0 | 5.7 | 4.7 | 5.0 | 5.3 | 5.3 | 6.0 | 7.0 | 5.4 |
| JT-45 | 4.0 | 5.3 | 6.0 | 5.3 | 5.0 | 5.3 | 5.7 | 7.0 | 5.5 |
| JT-42 | 4.0 | 5.7 | 5.7 | 5.7 | 6.0 | 5.7 | 6.3 | 5.7 | 5.9 |
| JT-33 | 4.3 | 4.7 | 5.0 | 4.3 | 5.0 | 5.3 | 5.7 | 6.7 | 5.1 |
| BGR-TF1 | 4.3 | 6.7 | 5.3 | 4.0 | 5.3 | 4.0 | 5.0 | 7.3 | 5.3 |
| BGR-TF2 | 4.0 | 5.7 | 7.0 | 5.0 | 5.7 | 5.3 | 6.3 | 7.7 | 6.0 |
| PST-5HP | 3.0 | 5.0 | 5.7 | 3.7 | 5.0 | 6.3 | 7.0 | 5.0 | 5.8 |
| PST-5WMD | 4.7 | 6.0 | 6.3 | 6.3 | 6.0 | 6.0 | 7.0 | 5.7 | 6.3 |
| AST 7002 | 3.3 | 5.0 | 6.0 | 4.7 | 5.3 | 4.0 | 6.7 | 6.7 | 5.4 |
| AST 7001 | 4.0 | 6.0 | 5.7 | 4.0 | 5.3 | 4.0 | 6.0 | 7.7 | 5.4 |
| CS-TF1 | 4.7 | 6.3 | 6.7 | 6.3 | 6.0 | 3.0 | 5.7 | 7.0 | 5.5 |
| KZ-1 | 4.3 | 5.7 | 5.3 | 5.3 | 5.0 | 4.0 | 5.3 | 7.3 | 5.1 |
| LS-11 | 5.0 | 6.3 | 7.3 | 6.3 | 5.3 | 4.7 | 6.0 | 8.3 | 5.9 |

| Entry Name | Spring green-up | April Quality | May Quality | Red Thread | June Quality | July Quality | August Quality | Genetic color | Season quality |
|---|---|---|---|---|---|---|---|---|---|
| LS-06 | 5.7 | 6.7 | 6.3 | 4.3 | 6.0 | 2.7 | 5.7 | 7.7 | 5.5 |
| DKS | 5.3 | 5.7 | 6.3 | 5.3 | 5.3 | 4.3 | 6.3 | 7.7 | 5.6 |
| LS-03 | 5.0 | 6.0 | 5.7 | 3.3 | 5.0 | 3.3 | 5.3 | 7.7 | 5.1 |
| GWTF | 4.0 | 6.0 | 6.0 | 5.0 | 5.3 | 5.7 | 7.0 | 8.0 | 6.0 |
| KZ-2 | 4.3 | 6.0 | 6.7 | 4.7 | 4.7 | 4.0 | 5.7 | 8.7 | 5.4 |
| AST-2 | 5.3 | 7.0 | 6.7 | 4.3 | 6.0 | 3.0 | 5.7 | 6.7 | 5.7 |
| AST-3 | 3.3 | 5.7 | 5.7 | 4.7 | 5.3 | 4.0 | 5.3 | 7.7 | 5.2 |
| RNP | 3.7 | 6.0 | 7.0 | 5.0 | 5.0 | 4.3 | 6.0 | 8.0 | 5.7 |
| AST-4 | 4.3 | 7.0 | 6.7 | 4.7 | 5.7 | 4.3 | 6.0 | 8.3 | 5.9 |
| AST 7003 | 5.0 | 6.0 | 6.0 | 5.0 | 5.3 | 3.7 | 5.0 | 8.7 | 5.2 |
| AST-1 | 5.0 | 5.0 | 7.3 | 4.3 | 5.3 | 4.0 | 5.7 | 8.3 | 5.5 |
| J-140 | 4.0 | 5.3 | 5.7 | 4.0 | 5.3 | 6.0 | 6.7 | 5.3 | 5.8 |
| ATF-1199 | 5.0 | 5.7 | 6.0 | 5.0 | 5.7 | 5.7 | 6.7 | 5.0 | 5.9 |
| Justice | 5.0 | 5.3 | 5.0 | 5.7 | 6.0 | 6.0 | 6.3 | 4.0 | 5.7 |
| Rebel IV | 5.0 | 6.0 | 6.3 | 6.7 | 6.0 | 6.0 | 6.3 | 4.7 | 6.1 |
| Millennium SRP | 6.3 | 6.0 | 6.0 | 5.7 | 5.7 | 5.0 | 5.0 | 5.3 | 5.5 |
| RK-1 | 5.0 | 5.3 | 6.3 | 5.0 | 5.0 | 6.7 | 7.3 | 5.3 | 6.1 |
| Rhambler | 5.0 | 5.7 | 5.7 | 4.7 | 5.0 | 6.0 | 7.0 | 6.3 | 5.9 |
| Firenza | 5.7 | 5.7 | 7.0 | 7.0 | 5.0 | 5.3 | 6.3 | 7.7 | 5.9 |
| Falcon IV | 4.7 | 5.7 | 5.7 | 4.7 | 4.3 | 5.3 | 7.0 | 4.3 | 5.6 |
| NA-TDDM | 3.0 | 7.0 | 6.3 | 5.3 | 4.7 | 4.3 | 5.7 | 8.0 | 5.6 |
| Sheridan II | 4.0 | 6.3 | 6.3 | 5.0 | 5.0 | 4.7 | 6.7 | 7.7 | 5.8 |
| Sideshooter | 3.3 | 6.3 | 6.3 | 5.3 | 5.3 | 5.7 | 7.3 | 5.7 | 6.2 |
| PST-5MAC | 5.0 | 5.7 | 6.0 | 6.3 | 5.3 | 5.7 | 7.3 | 5.0 | 6.0 |
| PST-R5B4 | 6.0 | 5.7 | 6.0 | 5.3 | 5.0 | 5.3 | 6.3 | 3.7 | 5.7 |
| PST-5R56 | 6.3 | 5.7 | 7.0 | 5.7 | 6.3 | 6.7 | 7.3 | 4.3 | 6.6 |
| PST-R5EP | 6.0 | 5.7 | 6.3 | 6.0 | 5.0 | 5.7 | 6.3 | 4.3 | 5.8 |
| PST-5BGR-06 | 5.7 | 5.3 | 5.3 | 5.0 | 5.0 | 5.7 | 6.7 | 4.0 | 5.6 |
| PST-5DVD | 5.0 | 5.3 | 5.7 | 4.3 | 4.7 | 4.3 | 6.3 | 5.7 | 5.3 |
| Montana | 5.3 | 6.0 | 5.3 | 6.0 | 5.0 | 5.0 | 6.3 | 5.7 | 5.5 |
| Tombstone | 5.7 | 6.3 | 6.0 | 4.3 | 4.3 | 4.3 | 6.0 | 5.7 | 5.4 |
| Taos | 6.0 | 5.3 | 5.3 | 5.7 | 4.7 | 5.3 | 5.7 | 3.3 | 5.3 |
| Dakota | 5.3 | 6.3 | 5.7 | 5.7 | 5.3 | 3.3 | 6.0 | 7.3 | 5.3 |
| Grande II | 6.0 | 6.0 | 5.7 | 5.7 | 4.0 | 5.3 | 5.3 | 4.3 | 5.3 |
| STR 86QR | 6.3 | 6.3 | 6.0 | 4.3 | 4.7 | 5.0 | 6.7 | 7.3 | 5.7 |
| Regiment II | 5.7 | 6.3 | 6.0 | 4.7 | 5.3 | 4.3 | 5.3 | 6.7 | 5.5 |
| SR 8550 | 5.0 | 5.7 | 6.0 | 4.7 | 5.0 | 4.7 | 4.7 | 7.3 | 5.2 |
| PST-5SIS | 5.3 | 5.3 | 6.3 | 5.3 | 4.7 | 6.7 | 7.0 | 3.0 | 6.0 |
| **LSD** | **1.7** | **1.4** | **1.7** | **2.8** | **1.8** | **1.8** | **1.8** | **2.0** | **1.8** |

*NTEP Tall Fescue Trial*

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 76 | 110 | 102 | 6 | 81 | 27 | 48 | 83 | 5 | 120 | 124 | 130 | 114 | 128 | 131 | 121 | 125 | 129 | 122 | 115 | 116 | 126 | 119 | 123 | 117 | 118 | 127 |
| 57 | 113 | 107 | 90 | 73 | 96 | 39 | 22 | 94 | 44 | 97 | 13 | 63 | 24 | 66 | 35 | 91 | 50 | 56 | 80 | 54 | 10 | 89 | 9 | 77 | 88 | |
| 17 | 16 | 3 | 87 | 58 | 85 | 37 | 98 | 105 | 62 | 21 | 75 | 51 | 69 | 30 | 23 | 79 | 55 | 67 | 26 | 109 | 61 | 49 | 8 | 100 | 92 | Jamestown IV |
| 41 | 15 | 34 | 42 | 86 | 82 | 32 | 43 | 111 | 28 | 40 | 29 | 45 | 72 | 108 | 59 | 12 | 1 | 103 | 60 | 33 | 18 | 99 | 112 | 101 | 68 | |
| 84 | 104 | 19 | 95 | 64 | 78 | 46 | 11 | 20 | 31 | 106 | 65 | 93 | 25 | 38 | 70 | 47 | 36 | 14 | 4 | 52 | 53 | 74 | 71 | 7 | 2 | |
| 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 |
| 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | |
| 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | Jamestown IV |
| 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | |
| 78 | 26 | 55 | 23 | 56 | 75 | 68 | 47 | 38 | 126 | 118 | 114 | 127 | 115 | 120 | 121 | 130 | 129 | 124 | 125 | 116 | 131 | 117 | 122 | 119 | 128 | 123 |
| 33 | 6 | 60 | 97 | 16 | 45 | 42 | 95 | 61 | 84 | 51 | 92 | 113 | 93 | 37 | 65 | 48 | 63 | 69 | 9 | 90 | 71 | 2 | 52 | 53 | 5 | |
| 39 | 79 | 22 | 112 | 46 | 21 | 111 | 27 | 54 | 73 | 110 | 77 | 76 | 74 | 28 | 82 | 44 | 35 | 108 | 31 | 81 | 18 | 57 | 102 | 98 | 19 | Jamestown IV |
| 104 | 62 | 70 | 24 | 10 | 100 | 103 | 58 | 89 | 14 | 101 | 50 | 17 | 49 | 86 | 67 | 106 | 41 | 29 | 8 | 85 | 13 | 3 | 15 | 66 | 34 | |
| 32 | 91 | 94 | 88 | 64 | 11 | 96 | 83 | 12 | 105 | 87 | 72 | 43 | 80 | 59 | 99 | 36 | 40 | 20 | 25 | 1 | 30 | 107 | 4 | 109 | 7 | |

Plains Rd.

The map is correctly oriented if the Turf building is on your left, Plains Rd on your right, and you are facing north.

## *URI Bentgrass Variety Trial: Pink Snow Mold Tolerance*

Dr. Rebecca Brown, Turfgrass Breeding and Genetics

The URI Bentgrass variety trial consists of 55 entries maintained as a fairway under a moderate level of management. During the winter of 2007-08 the trial was severely infected with pink snow mold (*Michrodochium nivale*). The trial was photographed during spring green-up in April and May to measure snow mold damage and recovery. Photos were analyzed to determine the percent of each plot which was green versus the pinkish-white of snow mold damage. Higher values indicate less damage; 90% green or better indicates undamaged turf.

Among the creeping bentgrasses SR1119, Bengal, PennCross, Southshore, Penn A-1, PennLinks, Providence and Penn G-1 showed the best tolerance at the initial rating. However, all were heavily damaged. SR1119 had the least damage and it had only 23% green turf on April 8, when a neighboring area which was protected with fungicides showed 91% green. Independence showed the fastest initial recovery, increasing from 6.3% green on April 8 to 34.9% green on April 17. SR1119 had 40.1% green on the same date. There were no significant differences in the amount of damage after the first rating, primarily due to large differences between replications.

The colonial bentgrasses were slower to break dormancy than the creeping bents, so the first data was collected on April 17. Overall they suffered less damage, with initial ratings above 30% green for all entries. The velvet bentgrasses did not begin to break dormancy until May. The most tolerant entries were all velvets; Barbella and Legendary both had greater than 60% green on May 6. There were no significant differences among the entries for either the colonials or the velvets.

## *URI Bentgrass Variety Trial*

*Creeping Bentgrass*

| Entry | Name | Source |
|---|---|---|
| 1. | Declaration | LebanonTurf |
| 2. | Independence | LebanonTurf |
| 3. | Penn G-1 | Tee-2-Green |
| 4. | Penn G-2 | Tee-2-Green |
| 5. | Seaside II | Tee-2-Green |
| 6. | Penn A-4 | Tee-2-Green |
| 7. | Penn G-6 | Tee-2-Green |
| 8. | Penn A-1 | Tee-2-Green |
| 9. | Penn A-2 | Tee-2-Green |
| 10. | PennCross | Turf-Seed |
| 11. | PennLinks | Turf-Seed |
| 12. | Alpha | Jacklin |
| 13. | L-93 | Jacklin |
| 14. | Putter | Jacklin |
| 15. | Southshore | Jacklin |
| 16. | T-1 | Jacklin |
| 17. | 01.0800 | Blue Moon Farm |
| 18. | LS-44 | Links Seed |
| 19. | SR1119 | Seed Research Oregon |
| 20. | Sandhill | Seed Research Oregon |
| 21. | Providence | Seed Research Oregon |
| 22. | MacKenzie (SRX1GPD) | Seed Research Oregon |
| 23. | SRX1WM | Seed Research Oregon |

| | | |
|---|---|---|
| 24. | Grand Prix | NovelAG |
| 25. | Princeville | LESCO |
| 26. | Shark | Mountain View Seeds |
| 27. | Authority (Exp#235050) | LESCO |
| 28. | Bengal | Barenbrug |

**Colonial Bentgrass**

| Entry | Name | Source |
|---|---|---|
| 29. | Alister | Turf-Seed |
| 30. | Glory | Turf-Seed |
| 31. | SRX7EE | Seed Research Oregon |
| 32. | SRX7CRCO | Seed Research Oregon |
| 33. | SRX7MOBB | Seed Research Oregon |
| 34. | SR7100 | Seed Research Oregon |
| 35. | SR7150 | Seed Research Oregon |
| 36. | Heriot | Barenbrug |
| 37. | Barking | Barenbrug |

**Velvet Bentgrass**

| Entry | Name | Source |
|---|---|---|
| 38. | Legendary | LebanonTurf |
| 39. | 4.1886 | Blue Moon Farm |
| 40. | Greenwich | Turf-Seed |
| 41. | Vesper | PickSeed |
| 42. | SR7200 | Seed Research Oregon |

**2006 Additions to Bentgrass Trial**

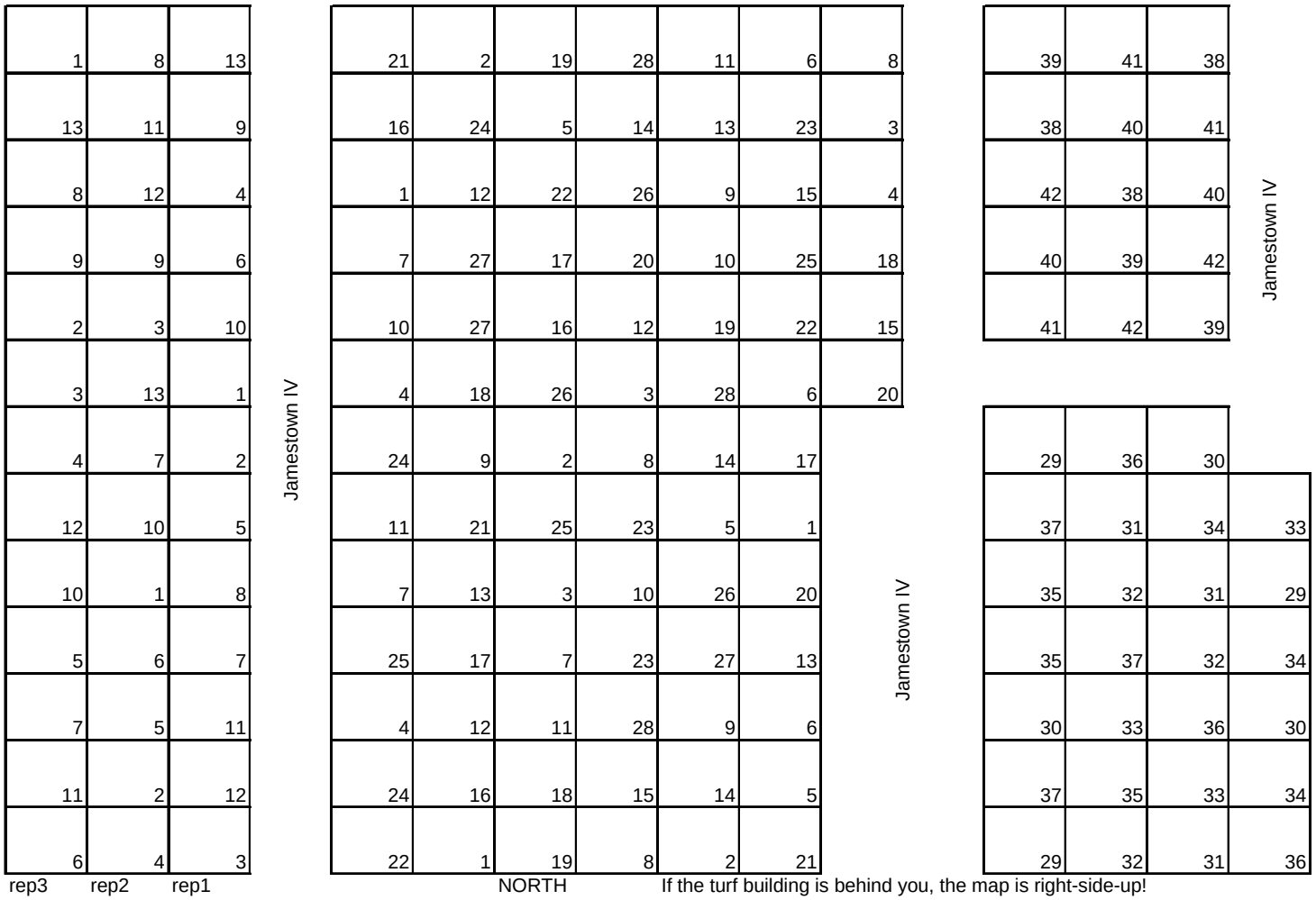
| Entry | Name | Species | Source |
|---|---|---|---|
| 1 | Barbella | Velvet | Barenbrug USA |
| 2 | Tyee | creeping | Seed Research Oregon |
| 3 | Mackenzie | creeping | Seed Research Oregon |
| 4 | OO7 | creeping | Seed Research Oregon |
| 5 | SRX7EE | colonial | Seed Research Oregon |
| 6 | SRX146-12 | creeping | Seed Research Oregon |
| 7 | SRX17TR3E | creeping | Seed Research Oregon |
| 8 | SRX1BL1E | creeping | Seed Research Oregon |
| 9 | SRX1BL2G | creeping | Seed Research Oregon |
| 10 | G6/Crystal BlueLinks | creeping | Pure-Seed Testing |
| 11 | A2/G2 | creeping | Pure-Seed Testing |
| 12 | Crystal BlueLinks (C8-3-OEB) | creeping | Pure-Seed Testing |
| 13 | PEII/PLII | creeping | Pure-Seed Testing |

## *Pink Snow Mold Tolerance Winter 2007-2008*

| | | | | | |
|---|---|---|---|---|---|
| | LSD | 10.9 | 27.5 | 37.4 | 13.6 |
| **Entry** | **species** | **Snow mold April 8** | **Snow mold April 17** | **Snow mold May 6** | **Snow mold May 23** |
| Alister | colonial | | 34.0 | 86.6 | 92.6 |
| Glory | colonial | | 41.0 | 90.8 | 95.8 |
| SRX7EE | colonial | | 36.1 | 89.8 | 93.3 |
| SRX7CRCO | colonial | | 38.0 | 86.7 | 93.2 |
| SRX7MOBB | colonial | | 32.3 | 86.7 | 94.2 |

| | | | | | |
|---|---|---|---|---|---|
| SR7100 | colonial | | 40.5 | 89.4 | 94.5 |
| SR7150 | colonial | | 33.2 | 82.0 | 91.1 |
| Heriot | colonial | | 36.9 | 88.8 | 95.0 |
| Barking | colonial | | 33.7 | 87.4 | 96.3 |
| SRX7EE | colonial | 13.5 | 30.9 | 87.2 | |
| Declaration | creeping | 5.8 | 9.8 | 47.4 | |
| Independence | creeping | 6.3 | 34.9 | 71.4 | |
| Penn G-1 | creeping | 13.3 | 14.9 | 52.2 | |
| Penn G2 | creeping | 5.6 | 17.0 | 52.5 | |
| Seaside II | creeping | 5.8 | 17.4 | 66.3 | |
| Penn A-4 | creeping | 7.6 | 32.2 | 66.7 | |
| Penn G-6 | creeping | 2.9 | 7.1 | 32.5 | |
| Penn A-1 | creeping | 16.0 | 27.1 | 67.4 | |
| Penn A-2 | creeping | 6.7 | 11.3 | 44.4 | |
| PennCross | creeping | 17.3 | 31.3 | 79.9 | |
| PennLinks | creeping | 15.9 | 28.6 | 65.1 | |
| Alpha | creeping | 12.2 | 23.5 | 63.1 | |
| L-93 | creeping | 7.1 | 15.8 | 54.3 | |
| Putter | creeping | 8.4 | 24.8 | 76.1 | |
| Southshore | creeping | 16.4 | 28.4 | 75.0 | |
| T-1 | creeping | 11.9 | 22.0 | 58.2 | |
| 01.0800 | creeping | 6.3 | 10.7 | 46.5 | |
| LS-44 | creeping | 8.9 | 21.8 | 65.1 | |
| SR1119 | creeping | 23.2 | 40.1 | 81.5 | |
| Sandhill | creeping | 9.7 | 20.9 | 66.4 | |
| Providence | creeping | 15.2 | 39.7 | 85.7 | |
| SRX1GPD | creeping | 6.1 | 17.3 | 66.8 | |
| SRX1WM | creeping | 9.2 | 15.6 | 47.3 | |
| Grand Prix | creeping | 7.2 | 17.9 | 61.6 | |
| Princeville | creeping | 10.0 | 25.3 | 67.6 | |
| Shark | creeping | 3.0 | 6.7 | 23.4 | |
| Exp#235050 | creeping | 3.9 | 4.5 | 26.0 | |
| Bengal | creeping | 21.6 | 36.1 | 71.1 | |
| Tyee | creeping | 9.4 | 16.7 | 53.2 | |
| Mackenzie | creeping | 7.7 | 19.5 | 57.6 | |
| OO7 | creeping | 6.3 | 13.4 | 54.9 | |
| SRX146-12 | creeping | 10.1 | 29.1 | 78.9 | |
| SRX17TR3E | creeping | 6.8 | 19.9 | 70.5 | |
| SRX1BL1E | creeping | 7.6 | 21.0 | 64.0 | |
| SRX1BL2G | creeping | 9.9 | 22.1 | 75.0 | |
| G6/Crystal BlueLinks | creeping | 7.3 | 19.1 | 59.5 | |
| A2/G2 | creeping | 7.5 | 21.6 | 82.0 | |
| Crystal BlueLinks (C8-3-OEB) | creeping | 10.8 | 23.4 | 73.4 | |
| PEII/PLII | creeping | 11.6 | 35.1 | 79.7 | |
| Legendary | velvet | | | 61.9 | 83.1 |
| 4.1886 | velvet | | | 28.8 | 69.4 |
| Greenwich | velvet | | | 53.2 | 85.4 |
| Vesper | velvet | | | 41.6 | 72.1 |
| SR7200 | velvet | | | 30.5 | 56.5 |
| Barbella | velvet | 5.2 | 32.0 | 67.0 | |

# URI Fairway Bentgrass Plot Map



## Could Organic Fertilizers Prevent Copperspot on Velvet Bentgrass?

Cynthia Percivalle and Dr. Rebecca Nelson Brown, University of Rhode Island Turfgrass Research Program

### Introduction

The fungal disease 'copperspot' (*Gloeocercospora sorghi)* is a pest that affects velvet bentgrass during the summer months. The disease thrives in warm, moist conditions and is commonly associated with acidic soils (most soils in Rhode Island have a lower pH). The disease is also induced by excess nitrogen; outbreaks generally occur following nitrogen fertilization. Nitrogen in slight excess of the plant's needs (i.e. it does not take up all of the nitrogen given to it through fertilization) is enough to result in copper spot outbreak.

The purpose of this research is to explore ways to give essential fertilization while reducing the risk of a copperspot outbreak. This study compares synthetic water-soluble fertilizer (20-9-20) with four organic fertilizers, each with a different source of Nitrogen. The objective is to determine whether the slower release of nitrogen from organic fertilizers reduces the incidence of copperspot. The organic fertilizers used were North Country Organics (8-1-9), Terracycle worm emulsion (0.03-0.002-0.02), Milorganite (6-2-0), and Multi-Bloom fish emulsion
(2-3-1).

### Materials and Methods

A preliminary study was done to find the lowest level of synthetic fertilizer needed to induce a copper spot outbreak. Nitrogen was applied at rates of 0.25, 0.50, 0.75 and 1lb/ $1000ft^2$ in three replications. Plugs were taken with a cup cutter from the field and placed in a greenhouse environment. The plugs were inoculated with the copperspot fungus, using inoculum grown on media in the lab. The inoculated plugs were put into plastic trays filled with half an inch of water and covered with clear plastic material to create a humid environment. The nitrogen was applied using water-soluble fertilizer. We found that $0.5lbsN/1000ft^2$ was sufficient to induce a copperspot outbreak. This was used as the standard application rate for the organic trials.

The organic trail consisted of four fertilizer treatments with the inorganic from the preliminary study included as the positive control. Two velvet bentgrass varieties were used, Greenwich and SR7200. Each fertilizer x variety combination was replicated six times. Fertilizer treatments were assigned on per tray. Trays were set up in the greenhouse under clear plastic material.

Multi-bloom, Terracycle, and the water soluble nitrogen were applied in liquid form, diluted with water. Milorganite and the North Country Organics were applied in granular form and mixed with sand to have enough mixture to evenly cover the plugs.

### Results

We found significant differences ($p<.05$) in copperspot incidence among the fertilizer treatments. All of the organic fertilizer treatments showed significantly less copperspot than the control. Differences among the organic fertilizers were tested using Fisher's Least Significant Difference test (Table 1). The Multi-Bloom fish emulsion and the Milorganite fertilizers had the least rate of copperspot occurrence.

Table 1

| SR | Synthetic | North Country Organics | Terracycle | Milorganite | Multi-bloom |
|---|---|---|---|---|---|
| MEAN | 8.33[a] | 5.83[a] | 0.33[b] | 0.16[b] | 0.16[b] |
| LSD 1.91 | | | | | |
| GW | | | | | |
| MEAN | 8.66[a] | 4.16[a] | 4.16[a] | 0.33[b] | 1.33[b] |
| LSD 0.33 | | | | | |

*Table 1: ratings for copperspot intensity on SR7200 (SR) and Greenwich (GW) velvet bentgrass plugs. Rated 1 through 10, 10 being high intensity. Significantly different treatments are classified in group a or b.*

## Conclusion

While copperspot is a relatively easy disease to control using fungicides, this experiment shows you can lessen the occurrence of a copperspot outbreak using cultural practices. Using fertilizers that slowly release Nitrogen as opposed to quick release synthetic fertilizers will help minimize copperspot aggressiveness, and possibly avoid an outbreak. This is useful for courses and greens with restricted chemical applications. Also, this study shows there may be a difference in variety, as with some fertilizers, the SR7200 had lower rates of copperspot occurrence. However, further study should be done in a field environment where conditions are favorable for copperspot.

## University of Rhode Island, Organic Lawn Fertilizer Trial

Joseph Fetter, Masters Candidate

Rising costs of synthetic fertilizers as well as soil and water contamination from residential lawns, has become an economical and environmental concern in recent years. Currently, the University of Rhode is evaluating eighteen organic fertilizer products and three controls to determine environmental impacts as well as overall quality. The eighteen products and three controls are replicated four times, resulting in 80 plots. Each plot will utilize a lysimeter to collect pore water. The trial area is Kentucky bluegrass which was sodded in June 2007. Fertilizer treatments began in May 2008. The trial is maintained as a lawn, mowed at 1.5" and irrigated as needed. Fertilizers are applied at rates ranging from 1 to 4 lbs (N/1000ft2/year). Granular products are applied 4 times per year, while liquid fertilizers are applied 8 times per year, unless otherwise directed.

Selected plots are evaluated twice per year for clipping weight, color, and overall quality. In addition, soil samples are analyzed twice per year to determine total nitrogen, phosphate, and potassium, along with microbial biomass, and microbial activity. Pore water is collected every month to check nitrate levels.

| Entry No. | Product | Sponsor | Rate (N/1000ft2/year) |
|---|---|---|---|
| 1 | Squid HPO4 | URI | 2# |
| 2 | Aquatrol | control | 2# |
| 3 | Mega-Green | Mega-Green/Multi-Bloom | 2# |
| 4 | Compost Tea 1,2,3 | ICT Organics | label |
| 5 | ConvOrg #1 | Converted Organics | 2.5# |
| 6 | ConvOrg #1 | Converted Organics | 4# |
| 7 | ConvOrg #2 | Converted Organics | 2.5# |
| 8 | ConvOrg #2 | Converted Organics | 4# |
| 9 | Org Recovery 50/50 | Organics & More | 2# |
| 10 | Org Recovery 100 | Organics & More | 2# |
| 11 | ProGro | North Country Organics | 1# |
| 12 | Squid Granules | URI | 2# |
| 13 | Right Stuff | Mainestream Organics | 1# |
| 14 | Right Stuff | Mainestream Organics | 2# |
| 15 | Bradfield #1 | Bradfield Organics | 1.5# |
| 16 | Bradfield #2 | Bradfield Organics | 2.6# |
| 17 | Sustane #1 | Sustane | 1# |
| 18 | Sustane #2 | Sustane | 2.6# |
| 19 | Griggs #1 | Griggs Bros. | 2# |
| 20 | Griggs #2 | Griggs Bros. | 2# |
| 21 | ProTurf | control | 2# |
| 22 | No Fertilizer | control | NA |

## Kentucky Bluegrass

Plains Rd

| | | | | | |
|---|---|---|---|---|---|
| 18 | 1 | 2 | 3 | 4 | 5 |
| 17 | 6 | 7 | 8 | 9 | 10 |
| 16 | 22 | 12 | 13 | 14 | 15 |
| 15 | 16 | 17 | 18 | 19 | 20 |
| 14 | 21 | 11 | 3 | 2 | 10 |
| 13 | 6 | 4 | 9 | 8 | 7 |
| 12 | 5 | 1 | 22 | 21 | 15 |
| 11 | 18 | 11 | 19 | 14 | 12 |
| 10 | 16 | 13 | 17 | 20 | 7 |
| 9 | 5 | 4 | 9 | 2 | 10 |
| 8 | 3 | 8 | 6 | 1 | 22 |
| 7 | 16 | 21 | 11 | 17 | 13 |
| 6 | 14 | 12 | 18 | 15 | 20 |
| 5 | 19 | 7 | 8 | 6 | 1 |
| 4 | 5 | 4 | 10 | 3 | 9 |
| 3 | 2 | 22 | 18 | 20 | 17 |
| 2 | 14 | 21 | 15 | 19 | 12 |
| 1 | 16 | 13 | 11 | | |
| | I | II | III | IV | V |

Effectiveness of Squid Hydrolysate as an Organic Fertilizer

Joseph Fetter

University of Rhode Island

Abstract

In 2006 an estimated 19,000 metric tons of squid (*Loligo pealei*) was landed off of the Atlantic coast according to the Rhode Island Division of Fish and Wildlife. This amount of squid results in a large amount of byproduct which is not presently usable. Currently, the squid byproduct is going through a bioconversion process into squid hydrolysate. Squid hydrolysate may be used as an organic fertilizer in either liquid or granular form.

Research at the University of Rhode Island focuses on determining the effectiveness of this new fertilizer. This study involves two separate plots and two different species of grass**:** kentucky bluegrass (*Poa pratensis*) 22.4 $ft^2$ trials, and perennial ryegrass (*Lolium perenne*) 25 $ft^2$ trials. Nineteen total products replicated four times at different rates will be employed comparing squid hydrolysate to different organic fertilizers. Both liquid and granular products will be applied ranging from 1 to 6 pounds of nitrogen per 1,000 square feet, per year. Turf quality, color and clipping weight will be analyzed, along with soil and pore water. Soil will be analyzed for moisture content, pH, available nitrogen, phosphorous and potassium, microbial biomass and activity, along with heavy metals, organic matter and total organic carbon and nitrogen. Pore water will be collected at a depth of two feet to determine the nitrate and phosphate levels. This experiment will take place over the course of two years.

**Perennial Ryegrass**

| | Plains Rd | | | |
|---|---|---|---|---|
| 20 | 29 | 30 | 31 | 35 |
| 19 | 36 | 37 | 38 | 23 |
| 18 | 24 | 25 | | |
| 17 | | 32 | 33 | 34 |
| 16 | 39 | 41 | 42 | E |
| 15 | 36 | 31 | 35 | 30 |
| 14 | 37 | 29 | 38 | 24 |
| 13 | | 39 | 23 | 34 |
| 12 | 25 | 42 | Irrigation | |
| 11 | | 33 | 32 | 41 |
| 10 | 37 | 29 | 31 | 35 |
| 9 | 36 | 30 | 38 | 24 |
| 8 | 33 | | | 25 |
| 7 | 34 | 42 | 23 | 32 |
| 6 | | 39 | 41 | E |
| 5 | 31 | 36 | 35 | 29 |
| 4 | 30 | 37 | 38 | 24 |
| 3 | 33 | | 41 | 34 |
| 2 | 25 | 39 | | 32 |
| 1 | | 42 | 23 | E |
| | VI | VII | VIII | IX |

| Entry No. | Product | Formulation | Rate (N/1000ft2/year) |
|---|---|---|---|
| 29 | Squid Granular | 7.19% N | 1# |
| 30 | Squid Granular | 7.19% N | 3# |
| 31 | Squid Granular | 7.19% N | 6# |
| 35 | ProTurf | 18% N | 1# |
| 36 | ProTurf | 18% N | 3# |
| 37 | Proturf | 18% N | 6# |
| 23 | Squid HPO4 | 3.25% N | 1# |
| 24 | Squid HPO4 | 3.25% N | 3# |
| 25 | Squid HPO4 | 3.25% N | 6# |
| 32 | Aquatrol | 20% N | 1# |
| 33 | Aquatrol | 20% N | 3# |
| 34 | Aquatrol | 20% N | 6# |
| 39 | Mega-Green | assume 13.5% N | 2# |
| 41 | Mega-Green | assume 13.5% N | 2# |
| 42 | Aquatrol | 20% N | 2# |
| 38 | No Fertilizer | 0% N | NA |

## *NTEP Perennial Ryegrass Variety Trial*

Dr. Rebecca Brown, Turfgrass Breeding and Genetics

The perennial ryegrass trial is in its fourth summer. It is maintained as a fairway mowed at 0.75". It receives 5 lbs N/ 1000 sq. ft. each year, is irrigated to prevent drought stress and receives regular applications of herbicides to control weeds. Grub control is applied if the grub population warrants control. No fungicides are used on the trial, as we are interested in evaluating genetic resistance to diseases.

Four summers of disease have taken their toll on this trial, and some of the entries are becoming thin and bunchy despite ample water and fertilizer. In addition to monthly quality ratings the trial was evaluated in 2008 for spring green-up, dollarspot damage, and genetic color. The trial was hit by red thread in May, but there was no evidence of any differences among entries. 2008 is the first year we have seen dollarspot on this trial.

Revenge GLX is the top performer for season quality. However, all entries with a rating of 5.9 or higher are as good statistically. Perennial ryegrass has the earliest spring green-up of our common turfgrasses, and Panther and Galatti have the best spring green-up of the entries in this trial. Palace has the darkest green color, with a score of 7.75 across four replications. However, all entries with color scores of 6.5 or more are statistically similar to Palace. Most of the entries were similarly tolerant of dollarspot, with 74% or more of the turf remaining green. Pinnacle, Linn, Sunshine 2 and Firebolt were the most heavily damaged entries.

## *2004 Perennial Ryegrass NTEP Trial Entries and Sponsors*

Entry numbers correspond to the numbers on the plot map. * Commercially available in the USA in 2007

| Entry | Name | Sponsor |
|---|---|---|
| 1 | LPR 02203 | Euro Grass Breeding |
| *2 | Panther | Standard Entry |
| 3 | Manhattan II | Standard Entry |
| *4 | Pizzazz | Turf Merchants, Inc. |
| *5 | Affinity | Turf Merchants, Inc. |
| *6 | Paragon GLR | Turf Merchants, Inc. |
| *7 | Protege | Turf Merchants, Inc. |
| *8 | Exacta II GLSR (LTP-611-GLSR) | Lebanon Seaboard Corp. |
| 9 | ES45 | Bailey Seeds |
| 10 | TR47 | Bailey Seeds |
| *11 | Preidio (CNV) | Columbia Seeds |
| 12 | GPR | Grasslands Oregon |
| *13 | Halo (KN42) | Kenako Seeds, Inc. |
| 14 | VB99 | Landmark Seed Company |
| 15 | VB77 | Landmark Seed Company |
| 16 | L44 | LESCO, Inc. |
| *17 | ASP 6003 (TRS) | Allied Seed |
| *18 | ASP 6002 (BPR) | Allied Seed |

| Entry | Name | Sponsor |
|---|---|---|
| *19 | ASP 6005 (AJM) | Allied Seed |
| *20 | ASP 6006 (LPFG) | Allied Seed |
| *21 | ASP 6004 (EXS54) | Allied Seed |
| *22 | ASP 6001 (RTS) | Allied Seed |
| *23 | Wind Dance 2 (PWDR) | Pennington Seed Company |
| *24 | Nexus XD (SP4) | Smith Seed Services |
| *25 | Nexus SR (SNR) | Smith Seed Services |
| *26 | Phenom (APR 1660) | Ampac Seed Company |
| *27 | Delaware XL (Pick 01-2) | Ampac Seed Company |
| *28 | Accent II (JR-119) | Jacklin Seed/Simplot |
| *29 | Top Gun II (JR-324) | Jacklin Seed/Simplot |
| *30 | Revenge GLX (JR-348) | Jacklin Seed/Simplot |
| *31 | Monterey 3 (JR-408) | Jacklin Seed/Simplot |
| *32 | DP1 | Pennington Seed Company |
| 33 | MMW | Pennington Seed Company |
| *34 | $1G^2$ (ARR 1664) | Pennington Seed Company |
| *35 | Mach I | Standard Entry |
| *36 | Dasher 3 (Pick RB-1) | Pickseed West |
| *37 | Zoom (LCK) | Rutgers University |
| *38 | Regal 5 (IS-PR 271) | DLF International Seed, Inc. |
| *39 | Palace (IS-PR 273) | Columbia Seeds |
| *40 | Attribute (IS-PR 270) | LESCO, Inc. |
| *41 | All*Star 3 (IS-PR-274) | DLF International Seeds |
| *42 | Amazing GS (IS-PR 276) | Ampac Seed Co. |
| *43 | Keystone 2 (IS-PR 312) | DLF International Seeds |
| *44 | Primary (IS-PR 269) | Columbia Seeds |
| *45 | Derby Xtreme (IS-PR 268) | DLF International Seeds |
| *46 | Stella GL (IS-PR 236) | Mountain View Seeds |
| *47 | Cabo II (IS-PR 233) | Grasslands Oregon |
| *48 | Kokomo II (IS-PR 235) | Grasslands Oregon |
| *49 | Buena Vista | Burlingham Seeds, LLC |
| *50 | Fusion | Burlingham Seeds, LLC |
| *51 | Charismatic II GLSR (LTP-PG-GLR) | Lebanon Seaboard Corp. |
| *52 | Secretariat II GLSR (LTP-101-GLSR) | Lebanon Seaboard Corp. |
| *53 | Caddieshack II (JR-l63) | Jacklin Seed/Simplot |
| *54 | Goalkeeper II (JR-114) | Jacklin Seed/Simplot |
| *55 | La Quinta (JR-255) | Jacklin Seed/Simplot |
| *56 | Overdrive | Burlingham Seeds, LLC |
| 57 | PST-217 | Pure-Seed Testing, Inc. |

| Entry | Name | Sponsor |
|---|---|---|
| *58 | Manhattan 5 GLR (PST-2AM) | Pure-Seed Testing, Inc. |
| 59 | PST-2BLK | Pure-Seed Testing, Inc. |
| 60 | PST-2MNG | Scotts Turf Seed |
| 61 | PST-2AG4 | Pure-Seed Testing, Inc. |
| *62 | Grand Slam 2 (PST-2GSM) | Mountain View Seed, Inc.. |
| 63 | PST-2LAN | Scotts Turf Seed |
| 64 | 04-BEN | Oregro Seed, Inc. |
| 65 | 04-BRE | Oregro Seed, Inc. |
| *66 | Sunshine 2 | Pickseed West |
| *67 | Fiesta 4 (Pick F4) | Pickseed West |
| 68 | Pick 02-R | Pickseed West |
| *69 | Firebolt (PRG HS-01-09) | Seed Research Oregon |
| *70 | Cutter II (PM 101) | Pickseed West |
| *71 | Dart (APR 1663) | Mountain View Seeds |
| *72 | Apple GL (AAZ-B104) | Z Seeds/Mountain View Seeds |
| *73 | Homerun (RG3P) | Mountain View Seeds |
| 74 | DCM | LESCO, Inc. |
| 75 | AF | LESCO, Inc. |
| 76 | PS-2 | LESCO, Inc. |
| *77 | Palmer III | Standard Entry |
| 78 | RAD-PR8 | Radix Research, Inc. |
| *79 | Brightstar SLT | Turf-Seed, Inc. |
| *80 | Citation Fore | Turf-Seed, Inc. |
| *81 | $ilver Dollar | Turf-Seed, Inc. |
| *82 | Gray Star (PST-2LGL) | Turf-Seed, Inc. |
| *83 | Quicksilver | Turf-Seed, Inc. |
| *84 | Premier II | Barenbrug USA |
| *85 | Pinnacle II | Barenbrug USA |
| *86 | Barlennium | Barenbrug USA |
| 87 | BAR Lp 4317 | Barenbrug USA |
| 88 | BAR Lp 4420 | Barenbrug USA |
| 89 | BAR Lp 492 | Barenbrug USA |
| 90 | SRX 4682 | Seed Research of Oregon |
| 91 | SRX 4692 | Seed Research of Oregon |
| *92 | SR 4600 (SRX 4SP) | Seed Research of Oregon |
| *93 | Harrier (SRX 4UP3) | Seed Research of Oregon |
| 94 | PM 102 | Pickseed West |
| *95 | Headstart 2 | Turf-One |

| Entry | Name | Sponsor |
|---|---|---|
| *96 | Calypso 3 (MS2) | Pickseed West |
| *97 | Repell GLS | ProSeeds Marketing |
| *98 | Panther GLS | ProSeeds Marketing |
| 99 | GL-2 | ProSeeds Marketing |
| *100 | RNS | ProSeeds Marketing |
| *101 | Palmer IV | ProSeeds Marketing |
| *102 | Line Drive (APR 1797) | ProSeeds Marketing |
| *103 | Edge II (AC2) | Pickseed West |
| *104 | Pleasure Supremem (PM 103) | Pickseed West |
| 105 | E-99 | Ultra-Turf |
| 106 | D04-LP05 | The Scotts Company |
| 107 | D04-UP | The Scotts Company |
| 108 | D04-11T | The Scotts Company |
| 109 | D04-1667 | The Scotts Company |
| *110 | Inspire | The Scotts Company |
| *111 | Pentium | The Scotts Company |
| 112 | APR 1648 | Ultra-Turf |
| 113 | APR 1670 | Lewis Seed Co. |
| *114 | Premier | Standard Entry |
| *115 | Pinnacle | Standard Entry |
| *116 | Linn | Standard Entry |
| 117 | DP 17-9499 | DLF-Trifolium A/S |
| 118 | Galatti (DP 17-9502) | DLF-Trifolium A/S |
| 119 | Pianist (DP 17-9505) | DLF-Trifolium A/S |
| 120 | DP 17-9788 | DLF-Trifolium A/S |

*Perennial Ryegrass NTEP Trial 2008 Data*

| LSD | 1.2 | 1.5 | 1.3 | 1.4 | 2.2 | 1.9 | 18.5 | 1.3 | |
|---|---|---|---|---|---|---|---|---|---|
| Entry | spring greenup | April Quality | May Quality | June Quality | July Quality | August Quality | Dollarspot | Genetic color | Season quality |
| LPR 02203 | 5.3 | 4.8 | 3.0 | 4.5 | 3.3 | 4.0 | 74.7 | 4.25 | 3.9 |
| Panther | 8.0 | 4.8 | 4.5 | 5.3 | 4.3 | 5.3 | 86.7 | 4 | 4.8 |
| Manhattan II | 4.7 | 4.3 | 3.3 | 3.8 | 3.5 | 4.5 | 79.0 | 4 | 3.9 |
| Pizzazz | 6.0 | 6.0 | 6.0 | 6.3 | 4.8 | 5.5 | 78.7 | 5.25 | 5.7 |
| Affinity | 6.0 | 4.3 | 4.3 | 5.0 | 3.0 | 4.5 | 76.7 | 3.25 | 4.2 |
| Paragon GLR | 5.0 | 6.3 | 5.8 | 6.0 | 5.8 | 5.3 | 85.4 | 5.5 | 5.8 |
| Protege | 5.0 | 6.5 | 6.3 | 6.3 | 6.3 | 6.0 | 86.1 | 7 | 6.3 |
| Exacta II GLSR (LTP-611-GLSR) | 4.7 | 6.5 | 6.0 | 6.5 | 6.0 | 6.0 | 84.8 | 5.25 | 6.2 |
| ES45 | 5.0 | 5.5 | 7.3 | 6.3 | 5.3 | 5.8 | 82.9 | 7.75 | 6.0 |
| TR47 | 4.7 | 6.3 | 7.5 | 5.8 | 6.5 | 6.0 | 79.7 | 7.5 | 6.4 |
| Preidio (CNV) | 5.0 | 5.8 | 7.0 | 5.8 | 5.5 | 5.0 | 84.5 | 7.5 | 5.8 |
| GPR | 5.0 | 6.0 | 6.8 | 5.5 | 5.8 | 5.8 | 90.3 | 7.5 | 6.0 |
| Halo (KN42) | 5.0 | 5.5 | 7.5 | 5.5 | 5.3 | 5.3 | 83.4 | 7.5 | 5.8 |
| VB99 | 5.0 | 5.8 | 6.5 | 6.5 | 5.3 | 5.3 | 80.2 | 7.25 | 5.9 |
| VB77 | 5.0 | 6.3 | 6.8 | 6.3 | 6.8 | 6.3 | 92.8 | 6.5 | 6.5 |
| L44 | 4.7 | 6.5 | 7.3 | 6.8 | 5.5 | 6.0 | 85.7 | 7.75 | 6.4 |
| ASP 6003 (TRS) | 4.7 | 6.0 | 6.8 | 5.5 | 6.3 | 6.0 | 84.7 | 7.5 | 6.1 |
| ASP 6002 (BPR) | 4.0 | 5.5 | 6.8 | 5.0 | 4.8 | 4.8 | 73.0 | 6.75 | 5.4 |
| ASP 6005 (AJM) | 5.0 | 6.8 | 6.5 | 5.8 | 4.5 | 5.5 | 69.1 | 7.25 | 5.8 |
| ASP 6006 (LPFG) | 4.5 | 6.0 | 7.0 | 5.8 | 5.3 | 5.3 | 76.8 | 7.25 | 5.9 |
| ASP 6004 (EXS54) | 4.7 | 6.3 | 6.5 | 5.8 | 6.8 | 6.0 | 88.8 | 7 | 6.3 |
| ASP 6001 (RTS) | 4.0 | 6.3 | 6.8 | 5.5 | 5.3 | 6.3 | 76.0 | 7.5 | 6.0 |
| Wind Dance 2 (PWDR) | 4.7 | 6.3 | 7.5 | 6.3 | 6.3 | 6.5 | 83.5 | 7 | 6.6 |
| Nexus XD (SP4) | 5.0 | 7.0 | 8.0 | 5.3 | 5.5 | 6.3 | 84.0 | 7.25 | 6.4 |
| Nexus SR (SNR) | 4.7 | 5.5 | 6.3 | 5.3 | 4.3 | 5.8 | 70.9 | 7.25 | 5.4 |
| Phenom (APR 1660) | 5.3 | 5.3 | 4.8 | 4.8 | 5.0 | 4.3 | 66.5 | 5 | 4.8 |
| Delaware XL (Pick 01-2) | 5.0 | 4.8 | 6.0 | 4.5 | 5.0 | 5.0 | 81.1 | 5.75 | 5.1 |
| Accent II (JR-119) | 5.0 | 5.5 | 5.8 | 5.3 | 6.0 | 5.5 | 84.0 | 5.75 | 5.6 |
| Top Gun II (JR-324) | 4.7 | 6.3 | 7.3 | 6.3 | 6.0 | 5.8 | 86.4 | 6.25 | 6.3 |
| Revenge GLX (JR-348) | 5.5 | 7.0 | 6.8 | 6.8 | 7.5 | 7.3 | 88.8 | 5.75 | 7.1 |
| Monterey 3 (JR-408) | 5.0 | 5.0 | 5.3 | 5.0 | 4.5 | 5.3 | 80.2 | 6 | 5.0 |
| DP1 | 5.0 | 6.3 | 5.5 | 5.5 | 4.8 | 5.0 | 82.4 | 5.5 | 5.4 |
| MMW | 5.5 | 6.8 | 6.3 | 5.3 | 5.3 | 5.5 | 83.7 | 5.75 | 5.8 |
| $1G^2$ (ARR 1664) | 5.0 | 5.8 | 6.0 | 6.3 | 5.8 | 5.8 | 87.5 | 5.5 | 5.9 |
| Mach I | 5.3 | 6.5 | 6.0 | 5.3 | 4.5 | 4.8 | 80.3 | 6.5 | 5.4 |
| Dasher 3 (Pick RB-1) | 5.0 | 6.3 | 5.8 | 6.0 | 6.3 | 5.8 | 82.4 | 6.75 | 6.0 |

| Entry | spring greenup | April Quality | May Quality | June Quality | July Quality | August Quality | Dollarspot | Genetic color | Season quality |
|---|---|---|---|---|---|---|---|---|---|
| Zoom (LCK) | 5.0 | 6.0 | 5.5 | 5.8 | 5.8 | 5.5 | 82.1 | 6 | 5.7 |
| Regal 5 (IS-PR 271) | 4.7 | 6.3 | 7.5 | 6.0 | 5.3 | 5.5 | 75.3 | 7.5 | 6.1 |
| Palace (IS-PR 273) | 5.0 | 6.3 | 6.8 | 5.3 | 5.5 | 5.5 | 85.6 | 7.75 | 5.9 |
| Attribute (IS-PR 270) | 5.0 | 6.5 | 6.3 | 5.3 | 6.3 | 6.0 | 82.3 | 6.5 | 6.1 |
| All*Star 3 (IS-PR-274) | 5.0 | 6.3 | 6.5 | 5.5 | 6.5 | 5.8 | 83.8 | 7 | 6.1 |
| Amazing GS (IS-PR 276) | 4.7 | 5.3 | 6.0 | 5.3 | 5.5 | 4.5 | 83.5 | 7 | 5.3 |
| Keystone 2 (IS-PR 312) | 4.7 | 6.0 | 5.3 | 5.8 | 5.5 | 5.5 | 86.1 | 5.75 | 5.6 |
| Primary (IS-PR 269) | 5.0 | 6.5 | 5.3 | 4.8 | 5.5 | 5.3 | 73.6 | 5.75 | 5.5 |
| Derby Xtreme (IS-PR 268) | 6.0 | 6.3 | 6.0 | 5.3 | 6.3 | 6.5 | 86.8 | 6 | 6.1 |
| Stella GL (IS-PR 236) | 4.3 | 5.8 | 5.8 | 5.3 | 5.8 | 5.3 | 80.8 | 7.25 | 5.6 |
| Cabo II (IS-PR 233) | 4.3 | 5.5 | 6.0 | 5.0 | 5.8 | 5.5 | 77.6 | 6.75 | 5.6 |
| Kokomo II (IS-PR 235) | 4.0 | 6.5 | 6.3 | 5.5 | 6.5 | 6.5 | 88.1 | 6.25 | 6.3 |
| Buena Vista | 4.7 | 5.5 | 5.3 | 4.5 | 5.0 | 4.8 | 74.7 | 5.5 | 5.0 |
| Fusion | 4.7 | 5.5 | 6.3 | 5.5 | 5.8 | 5.5 | 84.2 | 7.5 | 5.7 |
| Charismatic II GLSR (LTP-PG-GLR) | 5.5 | 6.0 | 5.5 | 5.0 | 4.8 | 5.5 | 86.6 | 5 | 5.4 |
| Secretariat II GLSR (LTP-101-GLSR) | 5.5 | 5.8 | 5.0 | 5.8 | 5.3 | 5.3 | 90.1 | 5.25 | 5.4 |
| Caddieshack II (JR-l63) | 3.7 | 5.0 | 5.3 | 5.0 | 4.3 | 4.5 | 69.0 | 5.25 | 4.8 |
| Goalkeeper II (JR-114) | 3.3 | 5.5 | 5.8 | 5.8 | 4.5 | 5.0 | 85.0 | 7.25 | 5.3 |
| La Quinta (JR-255) | 4.0 | 5.3 | 5.5 | 5.8 | 6.0 | 5.0 | 90.3 | 6.5 | 5.5 |
| Overdrive | 5.0 | 6.3 | 5.8 | 5.5 | 5.0 | 5.3 | 79.0 | 5.75 | 5.6 |
| PST-217 | 4.0 | 5.3 | 5.5 | 5.3 | 5.8 | 6.0 | 87.3 | 6.75 | 5.6 |
| Manhattan 5 GLR (PST-2AM) | 5.0 | 5.0 | 4.8 | 4.8 | 5.0 | 5.3 | 82.4 | 5 | 5.0 |
| PST-2BLK | 3.7 | 5.3 | 5.5 | 4.8 | 6.8 | 6.5 | 88.5 | 6.25 | 5.8 |
| PST-2MNG | 4.7 | 6.3 | 5.8 | 5.3 | 5.5 | 5.5 | 78.4 | 5.5 | 5.7 |
| PST-2AG4 | 5.3 | 6.0 | 5.8 | 4.5 | 4.5 | 5.3 | 81.5 | 6 | 5.2 |
| Grand Slam 2 (PST-2GSM) | 5.0 | 7.0 | 6.0 | 5.3 | 6.8 | 6.5 | 85.9 | 5 | 6.3 |
| PST-2LAN | 4.7 | 5.8 | 5.5 | 5.3 | 5.0 | 5.0 | 84.7 | 6 | 5.3 |
| 04-BEN | 5.0 | 5.0 | 5.0 | 5.3 | 4.5 | 4.3 | 72.2 | 5 | 4.8 |
| 04-BRE | 5.0 | 5.0 | 5.3 | 4.3 | 3.5 | 3.5 | 47.1 | 5.25 | 4.3 |
| Sunshine 2 | 4.0 | 5.3 | 7.0 | 5.5 | 3.8 | 3.8 | 57.4 | 7.5 | 5.1 |
| Fiesta 4 (Pick F4) | 5.0 | 6.3 | 6.0 | 5.8 | 5.5 | 5.8 | 76.5 | 6.5 | 5.9 |
| Pick 02-R | 5.0 | 6.0 | 7.5 | 4.5 | 3.5 | 4.5 | 60.5 | 7.25 | 5.2 |
| Firebolt (PRG HS-01-09) | 5.3 | 5.5 | 6.5 | 5.0 | 3.3 | 3.5 | 52.3 | 7 | 4.8 |
| Cutter II (PM 101) | 5.3 | 5.5 | 6.5 | 5.0 | 5.5 | 4.8 | 79.3 | 6.5 | 5.5 |
| Dart (APR 1663) | 5.0 | 5.8 | 4.8 | 5.5 | 5.0 | 6.0 | 84.9 | 4.5 | 5.4 |

| Entry | spring greenup | April Quality | May Quality | June Quality | July Quality | August Quality | Dollarspot | Genetic color | Season quality |
|---|---|---|---|---|---|---|---|---|---|
| Apple GL (AAZ-B104) | 5.5 | 6.3 | 5.8 | 5.0 | 4.3 | 5.8 | 75.6 | 5.5 | 5.4 |
| Homerun (RG3P) | 4.3 | 6.0 | 6.3 | 6.8 | 6.3 | 6.5 | 88.4 | 6.25 | 6.4 |
| DCM | 5.0 | 6.3 | 5.8 | 5.3 | 5.3 | 6.3 | 87.6 | 5.25 | 5.8 |
| AF | 4.7 | 4.8 | 5.0 | 4.5 | 4.5 | 5.0 | 75.0 | 5.5 | 4.8 |
| PS-2 | 4.0 | 4.8 | 5.8 | 5.0 | 4.5 | 5.3 | 81.6 | 6 | 5.1 |
| Palmer III | 5.0 | 4.5 | 4.3 | 5.0 | 3.0 | 4.3 | 67.2 | 4.25 | 4.2 |
| RAD-PR8 | 5.0 | 5.0 | 5.5 | 5.8 | 5.0 | 5.0 | 86.1 | 5 | 5.3 |
| Brightstar SLT | 4.3 | 5.5 | 5.5 | 5.8 | 6.3 | 6.0 | 86.4 | 5.25 | 5.8 |
| Citation Fore | 4.7 | 5.5 | 5.0 | 5.0 | 4.0 | 5.5 | 79.8 | 5 | 5.0 |
| $ilver Dollar | 5.0 | 5.3 | 5.5 | 4.5 | 5.0 | 6.0 | 81.1 | 5.5 | 5.3 |
| Gray Star (PST-2LGL) | 3.7 | 5.5 | 6.0 | 5.0 | 4.0 | 3.8 | 73.3 | 6.5 | 4.9 |
| Quicksilver | 4.0 | 5.5 | 5.8 | 5.5 | 4.5 | 5.3 | 80.2 | 5.75 | 5.3 |
| Premier II | 5.3 | 5.5 | 4.3 | 4.8 | 3.5 | 4.8 | 71.3 | 4 | 4.6 |
| Pinnacle II | 5.7 | 5.5 | 5.8 | 5.3 | 4.8 | 4.5 | 76.6 | 6 | 5.2 |
| Barlennium | 6.0 | 5.8 | 5.0 | 5.5 | 5.3 | 5.8 | 83.0 | 4.25 | 5.5 |
| BAR Lp 4317 | 4.0 | 5.8 | 5.3 | 5.3 | 5.3 | 5.0 | 81.6 | 4.5 | 5.3 |
| BAR Lp 4420 | 4.0 | 4.5 | 5.3 | 4.5 | 4.5 | 5.3 | 78.6 | 6 | 4.8 |
| BAR Lp 492 | 6.7 | 4.3 | 4.8 | 4.0 | 3.3 | 4.8 | 72.6 | 5 | 4.2 |
| SRX 4682 | 5.0 | 6.5 | 4.8 | 4.8 | 5.8 | 5.5 | 87.9 | 4.5 | 5.5 |
| SRX 4692 | 4.7 | 5.3 | 5.3 | 5.3 | 5.5 | 5.8 | 82.6 | 5.5 | 5.4 |
| SR 4600 (SRX 4SP) | 5.0 | 6.0 | 5.8 | 6.0 | 5.8 | 6.3 | 84.8 | 5.75 | 6.0 |
| Harrier (SRX 4UP3) | 5.3 | 6.3 | 6.0 | 5.3 | 4.0 | 5.3 | 78.0 | 5.75 | 5.4 |
| PM 102 | 5.5 | 6.0 | 7.3 | 6.0 | 5.0 | 5.5 | 80.3 | 7.5 | 6.0 |
| Headstart 2 | 4.5 | 5.8 | 6.5 | 4.8 | 5.3 | 5.5 | 77.6 | 6.5 | 5.6 |
| Calypso 3 (MS2) | 5.0 | 6.8 | 6.8 | 6.0 | 4.8 | 5.5 | 66.9 | 5.75 | 6.0 |
| Repell GLS | 5.0 | 6.3 | 5.5 | 5.8 | 5.3 | 5.0 | 85.1 | 5.5 | 5.6 |
| Panther GLS | 5.0 | 6.0 | 5.8 | 5.8 | 5.8 | 6.8 | 91.2 | 5 | 6.0 |
| GL-2 | 4.7 | 5.3 | 4.8 | 5.5 | 4.5 | 4.8 | 77.1 | 5 | 5.0 |
| RNS | 5.0 | 5.3 | 5.5 | 5.3 | 4.5 | 5.5 | 75.8 | 5.5 | 5.2 |
| Palmer IV | 5.0 | 6.8 | 6.8 | 5.8 | 5.0 | 5.3 | 78.4 | 6 | 5.9 |
| Line Drive (APR 1797) | 4.7 | 6.0 | 6.0 | 5.8 | 5.5 | 6.5 | 84.2 | 4.5 | 6.0 |
| Edge II (AC2) | 5.5 | 6.0 | 6.5 | 5.5 | 5.3 | 6.3 | 82.3 | 5.75 | 5.9 |
| Pleasure Supremem (PM 103) | 5.0 | 6.5 | 6.5 | 5.3 | 4.5 | 5.0 | 72.9 | 5.75 | 5.6 |
| E-99 | 4.7 | 5.5 | 4.8 | 5.0 | 6.0 | 6.8 | 90.2 | 5.25 | 5.6 |
| D04-LP05 | 4.0 | 5.5 | 6.0 | 5.3 | 6.8 | 6.8 | 91.0 | 5.5 | 6.1 |
| D04-UP | 5.0 | 5.8 | 5.0 | 4.8 | 4.5 | 5.3 | 74.1 | 5 | 5.1 |
| D04-11T | 5.0 | 7.3 | 5.8 | 6.0 | 7.0 | 6.5 | 91.3 | 6 | 6.5 |
| D04-1667 | 4.7 | 5.3 | 5.5 | 5.5 | 5.0 | 5.5 | 79.2 | 5 | 5.4 |
| Inspire | 5.0 | 5.8 | 5.0 | 5.3 | 4.5 | 5.3 | 74.1 | 4.5 | 5.2 |
| Pentium | 5.0 | 5.8 | 5.0 | 6.0 | 6.0 | 6.5 | 87.1 | 4.75 | 5.9 |
| APR 1648 | 5.5 | 4.5 | 5.8 | 5.0 | 6.0 | 6.8 | 90.1 | 6.25 | 5.6 |
| APR 1670 | 4.0 | 5.5 | 5.5 | 5.5 | 6.0 | 6.3 | 86.3 | 5 | 5.8 |
| Premier | 5.5 | 5.0 | 4.0 | 5.3 | 3.0 | 4.3 | 69.1 | 3 | 4.3 |

| Entry | spring greenup | April Quality | May Quality | June Quality | July Quality | August Quality | Dollarspot | Genetic color | Season quality |
|---|---|---|---|---|---|---|---|---|---|
| Pinnacle | 5.0 | 3.0 | 3.5 | 4.5 | 1.5 | 3.3 | 63.2 | 2.75 | 3.2 |
| Linn | 1.7 | 1.0 | 1.0 | 2.0 | 1.0 | 1.5 | 59.5 | 2.75 | 1.3 |
| DP 17-9499 | 8.0 | 7.3 | 6.3 | 6.3 | 4.8 | 5.8 | 85.5 | 6 | 6.1 |
| Galatti (DP 17-9502) | 7.3 | 6.0 | 6.3 | 6.3 | 4.0 | 5.3 | 78.6 | 6 | 5.6 |
| Pianist (DP 17-9505) | 6.3 | 5.8 | 6.3 | 5.0 | 4.5 | 4.8 | 72.8 | 5 | 5.3 |
| DP 17-9788 | 6.0 | 6.0 | 5.5 | 5.8 | 4.5 | 5.0 | 81.4 | 4.75 | 5.4 |

*Perennial Ryegrass Trial Map*

The top of the map faces north, towards the Kentucky bluegrass trial.

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 104 | 35 | 92 | 113 | 56 | 4 | 93 | 117 | 63 | 97 | 38 | 94 | 91 | 16 | 25 | 11 | 112 | 20 | 95 | 73 | 33 | 87 | 111 | 79 | 106 | 41 | 60 | 2 | 34 | 40 |
| 54 | 15 | 55 | 32 | 80 | 29 | 84 | 28 | 96 | 114 | 23 | 8 | 81 | 86 | 83 | 27 | 31 | 39 | 90 | 100 | 12 | 64 | 74 | 57 | 30 | 59 | 101 | 42 | 44 | 5 |
| 119 | 62 | 58 | 17 | 68 | 14 | 18 | 115 | 82 | 53 | 65 | 26 | 9 | 66 | 69 | 61 | 43 | 37 | 52 | 105 | 13 | 85 | 72 | 78 | 76 | 120 | 98 | 36 | 118 | 103 |
| 116 | 102 | 3 | 10 | 89 | 19 | 49 | 22 | 75 | 109 | 77 | 107 | 88 | 99 | 110 | 1 | 7 | 24 | 48 | 45 | 46 | 51 | 70 | 67 | 47 | 71 | 21 | 108 | 6 | 50 |
| 108 | 90 | 28 | 115 | 24 | 114 | 103 | 72 | 117 | 31 | 56 | 104 | 37 | 11 | 107 | 74 | 4 | 5 | 40 | 14 | 18 | 83 | 34 | 86 | 2 | 101 | 51 | 52 | 32 | 62 |
| 15 | 67 | 9 | 13 | 48 | 65 | 33 | 57 | 68 | 100 | 20 | 6 | 41 | 78 | 92 | 36 | 27 | 64 | 96 | 71 | 30 | 95 | 55 | 88 | 112 | 81 | 94 | 110 | 39 | 113 |
| 45 | 109 | 105 | 60 | 19 | 70 | 42 | 3 | 80 | 50 | 76 | 63 | 75 | 22 | 118 | 54 | 29 | 82 | 23 | 12 | 97 | 120 | 66 | 46 | 73 | 16 | 87 | 17 | 43 | 7 |
| 79 | 38 | 49 | 77 | 44 | 84 | 69 | 61 | 25 | 47 | 85 | 1 | 91 | 89 | 119 | 26 | 10 | 58 | 53 | 93 | 21 | 111 | 116 | 35 | 106 | 8 | 99 | 102 | 98 | 59 |
| 106 | 115 | 107 | 38 | 81 | 110 | 22 | 18 | 119 | 65 | 93 | 95 | 20 | 84 | 113 | 66 | 44 | 53 | 41 | 102 | 99 | 40 | 109 | 96 | 45 | 75 | 46 | 21 | 70 | 74 |
| 10 | 105 | 100 | 71 | 104 | 60 | 101 | 91 | 64 | 27 | 35 | 5 | 82 | 4 | 77 | 56 | 13 | 43 | 87 | 3 | 49 | 98 | 54 | 78 | 61 | 108 | 48 | 26 | 97 | 12 |
| 89 | 24 | 52 | 50 | 80 | 11 | 63 | 76 | 111 | 83 | 92 | 19 | 42 | 9 | 31 | 16 | 94 | 116 | 7 | 8 | 32 | 79 | 118 | 59 | 36 | 73 | 85 | 17 | 90 | 29 |
| 88 | 72 | 120 | 67 | 57 | 112 | 39 | 25 | 68 | 69 | 58 | 15 | 6 | 37 | 103 | 1 | 33 | 86 | 114 | 23 | 34 | 14 | 55 | 28 | 47 | 30 | 2 | 51 | 62 | 117 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |

## *URI Low-input Lawn Trial*

Dr. Rebecca Brown, Turfgrass Breeding and Genetics

The low-input trial is located on a sandy-gravelly outwash soil on the Agronomy Farm. It is maintained as a low-input home lawn with 1 lb N/1000 sq. ft. applied each fall as organic fertilizer. The trial is mowed at 3" with a rotary mower; clippings are left. It receives no pesticides and is not irrigated. This trial was seeded in May 2005. When rating this trial, I am primarily concerned with the ability of the grass to cover the soil and suppress weeds. Variability between reps is large because of variability in the underlying soil.

The best entries in this trial are the fine fescues, particularly the hard fescues. They are slow to green up in the spring, but they retain color through the driest part of summer and have excellent cover. The leading hard fescues are SR3150, SR3210, and Blacksheep. Several of the chewings fescues also do well. They go dormant more quickly than the hard fescues in the summer but make up for it by being faster to green up in the spring. They also have excellent cover and weed suppression. The best of the chewings fescues are Jamestown II, SR5100 and SR5130. The tall fescues tend to be yellow in this trial and do not mow as nicely as the fine fescues but they do an excellent job of weed suppression. Jaguar 3 is one of the best of the tall fescues in part because it greens up quickly in the spring. Grande II, Magellen, Padre and SilverStar are also top performers.

The Kentucky bluegrasses and the perennial ryegrasses have struggled with the low nitrogen and lack of irrigation in this trial. None of the entries scored above a 4.1 for quality averaged over the season. The low scores were primarily due to thin, open turf which permitted significant summer weed growth. SR 4550 and Inspire were the best of the perennial ryegrasses, maintaining 80% or greater cover in all but rep 3, which is the driest. Total Eclipse and Exp #3261 had the best cover of the Kentucky bluegrasses with coverage of 75% or better in three out of four replications. However, both entries had been overgrown with crabgrass and other summer annual weeds by August.

In addition to the more usual lawn grasses, this trial contains several species of bentgrasses and hairgrasses. The colonial bent cultivar SR7150 is a strong performer with a season-long quality score of 5.8, an average spring cover of 83%, including two plots with 100% cover, and almost no crabgrass. In addition it retained its color through three weeks without water in July. Barking was similar but lost more quality to dormancy. The tufted hairgrass Barcampsia (*Deschampsia cespitosa*) performed poorly but the crested hairgrass Barleria (*Koeleria* spp.) has come from a slow start due to low seed quality to be a strong competitor. The quality is similar to the best colonial bentgrasses but crested hairgrass is a bunchgrass.

*URI Low-input Lawn Trial Entries and Sponsors*

| No. | Entry | Sponsor | Species |
|---|---|---|---|
| 1. | Quantum Leap | PickSeed West | kentucky bluegrass |
| 2. | Blue Velvet | PickSeed West | kentucky bluegrass |
| 3. | Midnight II | Turf-seed | kentucky bluegrass |
| 4. | Nu Destiny | Jacklin | kentucky bluegrass |
| 5. | Liberator | Jacklin | kentucky bluegrass |
| 6. | Award | Jacklin | kentucky bluegrass |
| 7. | Total Eclipse | Jacklin | kentucky bluegrass |
| 8. | Perfection | Jacklin | kentucky bluegrass |
| 9. | Odyssey | Jacklin | kentucky bluegrass |
| 10. | NuGlade | Jacklin | kentucky bluegrass |
| 11. | Glenmont | LESCO | kentucky bluegrass |
| 12. | Shamrock | LESCO | kentucky bluegrass |
| 13. | Exp# 3261 | NovelAg | kentucky bluegrass |
| 14. | Courtyard | Scotts | kentucky bluegrass |
| 15. | Absolute | Jacklin | kentucky bluegrass |
| 16. | Beyond | Jacklin | kentucky bluegrass |
| 17. | Chicago II | Jacklin | kentucky bluegrass |
| 18. | Freedom III | Jacklin | kentucky bluegrass |
| 19. | Impact | Jacklin | kentucky bluegrass |
| 20. | Arcadia | Seed Research Oregon | kentucky bluegrass |
| 21. | Kingfisher | Seed Research Oregon | kentucky bluegrass |
| 22. | SR2284 | Seed Research Oregon | kentucky bluegrass |
| 23. | BarIris | Barenbrug | kentucky bluegrass |
| 24. | Barrister | Barenbrug | kentucky bluegrass |
| 25. | Barione | Barenbrug | kentucky bluegrass |
| 26. | Mach 1 | Pickseed West | perennial ryegrass |
| 27. | Lowgrow II | PickSeed West | perennial ryegrass |
| 28. | Sunshine II | PickSeed West | perennial ryegrass |
| 29. | Seville II | PickSeed West | perennial ryegrass |
| 30. | Goalkeeper | Jacklin | perennial ryegrass |
| 31. | Caddieshack | Jacklin | perennial ryegrass |
| 32. | CRR | NovelAg | perennial ryegrass |
| 33. | Wilmington | LESCO | perennial ryegrass |
| 34. | AllSport | LESCO | perennial ryegrass |
| 35. | Arrival | LESCO | perennial ryegrass |
| 36. | Inspire | Scotts | perennial ryegrass |
| 37. | Splendid | Scotts | perennial ryegrass |
| 38. | SR4550 | Seed Research Oregon | perennial ryegrass |
| 39. | Hawkeye | Seed Research Oregon | perennial ryegrass |
| 40. | SR4220 | Seed Research Oregon | perennial ryegrass |
| 41. | Bargold | Barenbrug | perennial ryegrass |
| 42. | Pinnacle II | Barenbrug | perennial ryegrass |
| 43. | WindWard | PickSeed West | chewings fescue |
| 44. | Sillhouette | PickSeed West | chewings fescue |
| 45. | Seabreeze GT | Turf-seed | slender creeping fescue |
| 46. | Jamestown II | Jacklin | chewings fescue |
| 47. | Berkshire | Scotts | hard fescue |

| No. | Entry | Sponsor | Species |
|---|---|---|---|
| 48. | Blacksheep | Scotts | sheep's fescue |
| 49. | SRX31K | Seed Research Oregon | fine fescue |
| 50. | SRX3BHO | Seed Research Oregon | fine fescue |
| 51. | SR5130 | Seed Research Oregon | chewings fescue |
| 52. | SR3150 | Seed Research Oregon | hard fescue |
| 53. | SR3210 | Seed Research Oregon | blue fescue |
| 54. | DawsonE | Seed Research Oregon | slender creeping fescue |
| 55. | SR5100 | Seed Research Oregon | chewings fescue |
| 56. | SRX52961 | Seed Research Oregon | strong creeping fescue |
| 57. | SRX55R | Seed Research Oregon | slender creeping fescue |
| 58. | Barcrown II | Barenbrug | slender creeping fescue |
| 59. | Bridgeport | Barenbrug | chewings fescue |
| 60. | Barking | Barenbrug | colonial bentgrass |
| 61. | BlackWatch | PickSeed West | tall fescue |
| 62. | Silverstar | Turf-seed | tall fescue |
| 63. | Tarheel II | Turf-seed | tall fescue |
| 64. | Jaguar 3 | Jacklin | tall fescue |
| 65. | Inferno | Jacklin | tall fescue |
| 66. | Magellan | LESCO | tall fescue |
| 67. | Padre | LESCO | tall fescue |
| 68. | Greenskeeper | Scotts | tall fescue |
| 69. | Grande II | Seed Research Oregon | tall fescue |
| 70. | Streaker | Jacklin | red top bentgrass |
| 71. | SR7100 | Seed Research Oregon | colonial bentgrass |
| 72. | SR7200 | Seed Research Oregon | velevet bentgrass |
| 73. | SR7150 | Seed Research Oregon | colonial bentgrass |
| 74. | Barcampsia | Barenbrug | tufted hairgrass |
| 75. | Barleria | Barenbrug | crested hairgrass |

| | LSD | 2 | 2.1 | 2.5 | 35.1 | 1.8 | 2.6 | 3.8 | 2.4 | 2.7 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **species** | **variety** | **spring green-up** | **April Quality** | **May Quality** | **Spring % Cover** | **June Quality** | **July Quality** | **dormancy** | **August Quality** | **Crab grass** | **season quality** |
| KBG | Quantum Leap | 4.0 | 3.5 | 2.0 | 45.0 | 3.5 | 2.0 | 4.0 | 1.5 | 3.0 | 2.5 |
| KBG | Blue Velvet | 4.8 | 3.5 | 1.5 | 31.3 | 2.8 | 1.0 | 1.7 | 2.0 | 3.3 | 2.2 |
| KBG | Midnight II | 4.5 | 3.5 | 3.3 | 62.5 | 4.3 | 1.8 | 4.7 | 1.0 | 1.8 | 2.8 |
| KBG | Nu Destiny | 5.5 | 3.5 | 1.8 | 40.0 | 3.8 | 2.8 | 5.7 | 3.0 | 1.8 | 3.0 |
| KBG | Liberator | 4.7 | 3.3 | 1.5 | 28.8 | 3.5 | 1.0 | 1.0 | 1.0 | 2.0 | 2.1 |
| KBG | Award | 5.0 | 3.5 | 1.0 | 15.0 | 3.8 | 1.5 | 3.5 | 1.3 | 1.5 | 2.2 |
| KBG | Total Eclipse | 5.0 | 5.0 | 3.0 | 75.0 | 3.0 | 3.3 | 3.7 | 2.3 | 2.0 | 3.3 |
| KBG | Perfection | 5.0 | 3.5 | 2.0 | 37.5 | 3.5 | 3.0 | 5.7 | 1.0 | 1.3 | 2.6 |
| KBG | Odyssey | 4.3 | 3.3 | 2.5 | 37.5 | 3.3 | 3.0 | 2.0 | 1.0 | 3.3 | 2.6 |
| KBG | NuGlade | 3.8 | 4.3 | 1.5 | 28.8 | 4.8 | 4.5 | 7.7 | 4.0 | 5.0 | 3.8 |
| KBG | Glenmont | 4.0 | 4.3 | 1.8 | 45.0 | 3.5 | 2.3 | 5.7 | 2.0 | 2.3 | 2.8 |
| KBG | Shamrock | 4.8 | 3.5 | 2.0 | 56.3 | 4.3 | 1.8 | 5.5 | 2.0 | 2.0 | 2.7 |
| KBG | Exp# 3261 | 5.3 | 4.3 | 4.0 | 75.0 | 5.3 | 3.3 | 8.5 | 2.8 | 3.8 | 3.9 |
| KBG | Courtyard | 4.8 | 3.5 | 3.0 | 53.8 | 3.8 | 2.3 | 4.3 | 2.0 | 2.5 | 2.9 |
| KBG | Absolute | 4.8 | 4.5 | 3.3 | 56.3 | 4.5 | 3.3 | 3.3 | 2.8 | 4.8 | 3.7 |
| KBG | Beyond | 4.3 | 3.3 | 1.8 | 56.3 | 3.3 | 1.0 | 6.0 | 1.0 | 1.0 | 2.1 |
| KBG | Chicago II | 4.3 | 4.3 | 2.5 | 50.0 | 4.3 | 4.5 | 4.3 | 1.3 | 4.5 | 3.4 |
| KBG | Freedom III | 5.0 | 3.3 | 1.0 | 30.0 | 3.8 | 2.5 | 2.7 | 1.8 | 1.3 | 2.5 |
| KBG | Impact | 4.3 | 3.5 | 1.8 | 31.3 | 3.8 | 1.8 | 3.0 | 1.0 | 1.0 | 2.4 |
| KBG | Arcadia | 5.5 | 4.0 | 2.5 | 58.8 | 4.0 | 2.0 | 6.0 | 2.3 | 2.0 | 3.0 |
| KBG | Kingfisher | 4.3 | 4.0 | 3.0 | 57.5 | 3.8 | 4.0 | 5.5 | 2.8 | 2.5 | 3.5 |
| KBG | SR2284 | 6.0 | 3.8 | 2.8 | 60.0 | 4.0 | 2.5 | 7.5 | 2.5 | 2.8 | 3.1 |
| KBG | BarIris | 4.8 | 4.5 | 3.5 | 56.3 | 5.5 | 4.3 | 3.8 | 2.5 | 3.5 | 4.1 |
| KBG | Barrister | 3.8 | 3.0 | 1.5 | 43.8 | 2.8 | 1.5 | 2.3 | 1.3 | 3.0 | 2.0 |
| KBG | Barione | 5.3 | 3.5 | 3.5 | 62.5 | 4.8 | 3.3 | 2.8 | 1.3 | 2.0 | 3.3 |
| PR | Mach1 | 7.3 | 3.8 | 2.3 | 57.5 | 3.5 | 1.8 | 3.3 | 2.5 | 1.5 | 2.8 |
| PR | Lowgrow II | 7.3 | 3.5 | 3.3 | 66.3 | 4.0 | 2.3 | 2.0 | 3.5 | 2.5 | 3.3 |
| PR | Sunshine II | 7.5 | 4.0 | 2.3 | 58.8 | 4.3 | 1.3 | 3.0 | 2.8 | 2.3 | 2.9 |
| PR | Seville II | 7.3 | 3.8 | 3.3 | 61.3 | 4.0 | 2.5 | 2.8 | 2.3 | 2.5 | 3.2 |
| PR | Goalkeeper | 6.8 | 3.3 | 3.3 | 58.8 | 4.8 | 3.3 | 4.5 | 3.0 | 1.0 | 3.5 |
| PR | Caddieshack | 7.8 | 4.0 | 3.5 | 56.3 | 4.5 | 3.3 | 3.3 | 3.0 | 2.0 | 3.7 |
| PR | CRR | 7.3 | 3.8 | 3.0 | 56.3 | 3.5 | 2.5 | 2.5 | 3.3 | 1.3 | 3.2 |
| PR | Wilmington | 6.0 | 3.5 | 3.8 | 60.0 | 4.3 | 3.3 | 3.3 | 3.3 | 2.8 | 3.6 |
| PR | AllSport | 7.0 | 3.5 | 3.8 | 67.5 | 4.3 | 2.8 | 3.8 | 1.3 | 2.8 | 3.1 |
| PR | Arrival | 7.8 | 3.8 | 3.3 | 60.0 | 4.3 | 3.0 | 3.5 | 2.8 | 2.0 | 3.4 |
| PR | Inspire | 6.8 | 4.8 | 3.8 | 75.0 | 5.3 | 3.3 | 4.3 | 2.8 | 1.3 | 4.0 |
| PR | Splendid | 6.3 | 4.0 | 2.8 | 51.3 | 4.3 | 2.8 | 2.5 | 1.8 | 1.0 | 3.1 |
| PR | SR4550 | 5.0 | 3.5 | 3.0 | 77.5 | 3.8 | 1.5 | 4.0 | 1.8 | 1.0 | 2.7 |
| PR | Hawkeye | 5.8 | 3.0 | 2.5 | 43.8 | 2.8 | 2.3 | 2.8 | 1.8 | 1.0 | 2.5 |
| PR | SR4220 | 6.0 | 4.3 | 3.8 | 65.0 | 4.3 | 4.3 | 4.3 | 3.8 | 3.8 | 4.1 |
| PR | Bargold | 5.5 | 4.0 | 3.3 | 72.5 | 4.3 | 4.3 | 5.5 | 4.8 | 2.3 | 4.1 |
| PR | Pinnacle II | 6.5 | 3.5 | 3.0 | 43.8 | 4.3 | 2.8 | 4.5 | 2.8 | 1.5 | 3.3 |
| FF (chewings) | WindWard | 3.3 | 5.5 | 5.3 | 87.5 | 5.0 | 6.5 | 4.0 | 4.3 | 7.5 | 5.3 |
| FF (chewings) | Sihouette | 3.0 | 5.5 | 6.0 | 87.5 | 5.3 | 5.5 | 3.8 | 4.0 | 7.5 | 5.3 |
| FF (slender) | Seabreeze GT | 4.0 | 4.0 | 4.3 | 57.5 | 4.5 | 4.3 | 6.5 | 3.3 | 6.5 | 4.1 |
| FF (chewings) | Jamestown II | 4.3 | 5.7 | 5.7 | 100.0 | 5.0 | 6.0 | 4.7 | 5.0 | 6.3 | 5.5 |
| FF (hard) | Berkshire | 1.8 | 6.8 | 7.0 | 81.3 | 6.3 | 7.8 | 8.3 | 7.5 | 9.0 | 7.1 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FF (sheep) | Blacksheep | 1.8 | 8.0 | 6.3 | 100.0 | 6.3 | 8.3 | 7.0 | 7.5 | 8.5 | 7.3 |
| FF (hard) | SRX31K | 1.3 | 7.7 | 8.3 | 100.0 | 6.7 | 8.7 | 7.7 | 8.0 | 9.0 | 7.9 |
| FF | SRX3BHO | 2.0 | 6.0 | 5.7 | 88.3 | 5.7 | 6.3 | 7.0 | 5.7 | 8.7 | 5.9 |
| FF (chewings) | SR5130 (SRX51G) | 3.0 | 5.7 | 4.7 | 91.7 | 5.7 | 5.0 | 4.7 | 4.0 | 8.7 | 5.0 |
| FF (hard) | SR3150 | 2.0 | 7.0 | 7.3 | 100.0 | 6.7 | 8.3 | 8.0 | 7.7 | 8.7 | 7.4 |
| FF (blue) | SR3210 | 1.3 | 7.7 | 8.7 | 100.0 | 7.0 | 8.3 | 6.0 | 7.3 | 9.0 | 7.8 |
| FF (slender) | DawsonE | 3.7 | 4.7 | 4.3 | 71.7 | 4.3 | 4.3 | 5.0 | 3.0 | 4.7 | 4.1 |
| FF (chewings) | SR5100 | 3.3 | 6.3 | 5.7 | 91.7 | 4.7 | 5.7 | 3.7 | 3.3 | 8.7 | 5.1 |
| FF | SRX52961 | 4.3 | 6.7 | 5.7 | 100.0 | 5.0 | 5.3 | 5.3 | 4.0 | 7.0 | 5.3 |
| FF (slender) | SRX55R | 3.3 | 4.0 | 3.0 | 50.0 | 4.0 | 4.0 | 5.7 | 2.7 | 7.0 | 3.5 |
| FF (slender) | Barcrown II | 3.3 | 5.5 | 5.8 | 87.5 | 4.5 | 5.3 | 7.0 | 4.5 | 7.5 | 5.1 |
| FF (chewings) | Bridgeport | 2.8 | 6.8 | 5.8 | 87.5 | 5.3 | 6.3 | 4.8 | 5.5 | 7.8 | 5.9 |
| Colonial Bent | Barking | 3.3 | 5.5 | 4.8 | 75.0 | 5.5 | 5.8 | 5.0 | 4.8 | 8.8 | 5.3 |
| TF | Blackwatch | 3.7 | 5.3 | 6.3 | 86.7 | 5.3 | 6.0 | 5.0 | 5.7 | 8.0 | 5.7 |
| TF | Silverstar | 3.8 | 5.5 | 6.5 | 91.3 | 5.8 | 5.8 | 5.8 | 5.3 | 7.3 | 5.8 |
| TF | Tarheel II | 3.8 | 5.0 | 6.0 | 93.8 | 6.0 | 5.0 | 5.8 | 4.8 | 6.8 | 5.4 |
| TF | Jaguar 3 | 6.0 | 5.5 | 7.0 | 100.0 | 5.8 | 5.5 | 5.5 | 5.5 | 7.3 | 5.9 |
| TF | Inferno | 4.0 | 5.3 | 5.5 | 75.0 | 5.3 | 5.5 | 5.0 | 4.3 | 6.5 | 5.2 |
| TF | Magellan | 4.5 | 5.3 | 5.8 | 87.5 | 5.8 | 6.8 | 6.5 | 6.0 | 7.5 | 5.9 |
| TF | Padre | 4.8 | 5.3 | 6.3 | 85.0 | 6.5 | 6.3 | 6.3 | 5.8 | 7.5 | 6.0 |
| TF | Greenskeeper | 5.5 | 4.8 | 4.8 | 76.3 | 5.8 | 4.8 | 5.8 | 5.3 | 7.3 | 5.1 |
| TF | Grande II | 4.0 | 5.0 | 6.0 | 85.0 | 6.3 | 6.8 | 6.0 | 6.0 | 7.3 | 6.0 |
| red top bent | Streaker | 6.5 | 4.8 | 3.0 | 75.0 | 3.0 | 3.0 | 4.3 | 1.5 | 1.5 | 3.1 |
| Colonial Bent | SR7100 | 3.0 | 4.5 | 4.3 | 60.0 | 5.3 | 4.5 | 6.0 | 4.0 | 7.5 | 4.5 |
| velvet bent | SR7200 | 1.5 | 2.3 | 2.8 | 32.5 | 3.8 | 2.8 | 5.0 | 2.0 | 6.8 | 2.7 |
| Colonial Bent | SR7150 | 3.0 | 5.0 | 5.3 | 83.8 | 5.5 | 6.5 | 8.0 | 6.5 | 8.8 | 5.8 |
| tufted hairgrass | Barcampsia | 3.5 | 2.8 | 1.8 | 18.8 | 3.0 | 2.3 | 4.5 | 2.3 | 2.8 | 2.4 |
| crested hairgrass | Barleria | 3.5 | 5.8 | 5.5 | 86.3 | 5.8 | 6.0 | 6.3 | 5.8 | 9.0 | 5.8 |

*Low-input Lawn Trial Plot Map*

The trial is located in the northeast corner of Agronomy; the top of the map is north.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13 | 48 | 56 | 14 | 23 | 26 | 68 | 49 | 20 | 74 |
| 42 | 37 | 10 | 71 | 32 | 29 | 67 | 72 | 39 | 21 |
| 36 | 54 | 69 | 25 | 64 | 4 | 58 | 31 | 18 | 70 |
| 16 | 61 | 41 | 8 | 51 | 52 | 46 | 5 | 6 | 50 |
| 11 | 19 | 47 | 2 | 43 | 22 | 9 | 1 | 17 | 40 |
| 62 | 53 | 38 | 7 | 15 | 34 | 45 | 65 | 60 | 28 |
| 58 | 63 | 66 | 12 | 27 | 33 | 57 | 24 | 55 | 75 |
| 44 | 73 | 3 | 30 | 35 | 26 | 24 | 9 | 14 | 50 |
| 66 | 23 | 51 | 17 | 68 | 62 | 56 | 74 | 18 | 70 |
| 48 | 49 | 63 | 10 | 43 | 64 | 8 | 29 | 42 | 58 |
| 6 | 69 | 30 | 13 | 11 | 1 | 22 | 31 | 39 | 2 |
| 27 | 59 | 16 | 7 | 67 | 45 | 20 | 54 | 33 | 32 |
| 55 | 15 | 34 | 53 | 47 | 4 | 41 | 35 | 36 | 25 |
| 38 | 71 | 21 | 52 | 3 | 65 | 61 | 60 | 5 | 73 |
| 12 | 19 | 46 | 37 | 44 | 40 | 57 | 75 | 72 | 28 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| empty row >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> | | | | | | | | | |
| 66 | 42 | 35 | 30 | 25 | 37 | 67 | 9 | 62 | empty |
| 33 | 17 | 43 | 68 | 69 | 3 | 22 | 12 | 4 | 28 |
| 21 | 74 | 34 | 1 | 64 | 36 | 47 | 27 | 11 | 72 |
| 60 | 48 | 20 | 38 | 59 | 32 | 75 | 5 | 41 | 26 |
| 7 | 58 | 65 | 24 | 31 | 71 | 40 | 18 | 8 | 13 |
| 29 | 23 | 19 | 70 | 14 | 45 | 6 | 73 | 15 | 44 |
| 67 | 34 | 39 | 63 | 38 | 2 | 10 | 16 | 39 | 63 |
| 32 | 71 | 68 | 31 | 55 | 62 | 22 | 13 | 36 | 10 |
| 30 | 56 | 4 | 73 | 26 | 28 | 16 | 58 | 3 | 46 |
| 45 | 37 | 21 | 19 | 50 | 33 | 27 | 14 | 5 | 65 |
| 6 | 61 | 59 | 15 | 69 | 2 | 23 | 48 | 12 | 29 |
| 17 | 47 | 8 | 75 | 43 | 25 | 7 | 44 | 64 | 74 |
| 11 | 41 | 70 | 51 | 57 | 20 | 49 | 24 | 53 | 1 |
| 52 | 72 | 42 | 60 | 35 | 66 | 54 | 18 | 9 | 40 |

# URI Kentucky Bluegrass Variety Trial

Dr. Rebecca Brown, Turfgrass Breeding and Genetics

The URI Kentucky bluegrass trial was seeded in April 2006. The trial is maintained as a high-quality lawn. Quality data is collected monthly. Entries are also evaluated for spring green-up, seedhead production, genetic color, and turf color. Data on red thread infection was collected in the fall of 2007; dollarspot data was collected in July 2008. Plugs cut from the trial were rated for tolerance to high levels of the herbicide Tenacity in November 2007.

There were few significant differences in overall quality among the entries; all entries with scores above 5.0 have acceptable quality. This is partly due to the lighter green cultivars having superior cover and spring green-up, which compensate for the lack of dark green color. In early spring the best cultivars were Barimpala and Mystere, both of which have rapid green-up. By late May the top performers were Moonlight and Barrister. Everest, Bewitched, Liberator, Impact and Wildwood were similar. KenBlue had the best dollarspot resistance overall. Among the improved types Mystere, Moonlight, America and Moonshadow had the best resistance. Mystere had the best July and August quality, followed by Moonlight, America, Bewitched and Moonshadow. Barimpala had the best redthread resistance, which may have contributed to its good quality in March and April.

All of the entries survived two applications of Tenacity at the rate of 1 lb a.i./acre, which was sufficient to kill all creeping bentgrass and poa annua controls and prevent the germination of new poa annua seedlings. Tenacity was applied in early October and again two weeks later. The amount of phytotoxicity varied significantly among entries, from no phytotoxicity to severe bleaching. Severely damaged entries did not recover before winter, but showed no sign of damage after spring green-up. Mystere showed the least damage. Other entries with minimal damage were Blueberry, Moonbeam, Barimpala, Moonlight, Prosperity, Blackberry, Quantum Leap, Midnight Star, and Rugby II. Entries with scores below 5.0 showed severe phyototoxicity.

**2006 URI KBG Trial Entries and Sponsors**

* Commercially available in the USA in 2007

| No. | Entry | Sponsor |
|---|---|---|
| 1 | STR2451 | Seed Research Of Oregon |
| 2 | STR2278 | Seed Research Of Oregon |
| 3 | STR296324 | Seed Research Of Oregon |
| *4 | Starburst (STR2703) | Seed Research Of Oregon |
| 5 | STR2844 | Seed Research Of Oregon |
| 6 | STR235 | Seed Research Of Oregon |
| 7 | EXP#A00-247 | LESCO, Inc. |
| 8 | NA-3257 | LESCO, Inc. |
| 9 | EXP#H01-229 | LESCO, Inc. |
| *10 | Glenmont | LESCO, Inc. |
| *11 | Hallmark | LESCO, Inc. |
| 12 | BAR PP 0468 | Barenbrug USA |
| *13 | Baronie | Barenbrug USA |
| *14 | Bariris | Barenbrug USA |
| *15 | Barimpala | Barenbrug USA |
| 16 | BAR VV 8536 | Barenbrug USA |
| *17 | Barrister | Barenbrug USA |
| *18 | Argos | Pickseed West |
| 19 | H98-768 | Pickseed West |
| 20 | A03-77 | Pickseed West |
| 21 | H98-46 | Pickseed West |

| No. | Entry | Sponsor |
|---|---|---|
| *22 | P-105 | URI standard |
| 23 | 5.0336 | Blue Moon Farm |
| *24 | Midnight Star | Scotts Turf Seed |
| 25 | 102-983 | Pure-Seed Testing, Inc. |
| 26 | 1025-117 | Pure-Seed Testing, Inc. |
| 27 | 102-295 | Pure-Seed Testing, Inc. |
| 28 | 102-1011 | Pure-Seed Testing, Inc. |
| *29 | Midnight II | Scotts Turf Seed |
| *30 | Low Mow | Pure-Seed Testing, Inc. |
| 31 | 102-145 | Pure-Seed Testing, Inc. |
| 32 | 1A1-199 | Pure-Seed Testing, Inc. |
| *33 | Prosperity | Scotts Turf Seed |
| *34 | Full Moon | Scotts Turf Seed. |
| 35 | 102-360 | Pure-Seed Testing, Inc. |
| *36 | High Noon | Scotts Turf Seed. |
| 37 | 101-390 | Scotts Turf Seed. |
| *38 | Moonshine | Scotts Turf Seed. |
| 39 | 103-585 | Pure-Seed Testing, Inc. |
| *40 | Moonbeam | Scotts Turf Seed |
| 41 | 102-965 | Pure-Seed Testing, Inc. |
| 42 | 102-45 | Pure-Seed Testing, Inc. |
| 43 | 103-68 | Pure-Seed Testing, Inc. |
| *44 | Deepblue | Jonathon Green |
| *45 | Blue-riffic | Jonathon Green |
| *46 | Blue-tastic | Jonathon Green |
| *47 | Quantum Leap | New England Sod Producers Association |
| *48 | Northstar | New England Sod Producers Association |
| *49 | Moonlight | New England Sod Producers Association |
| *50 | Liberator | New England Sod Producers Association |
| *51 | Shamrock | NTEP standard |
| *52 | Midnight | NTEP standard |
| *53 | Kenblue | NTEP standard |
| 54 | MSP 3722 | NTEP/Univ. of Minnesota |
| 55 | MSP 3723 | NTEP/Univ. of Minnesota |
| 56 | MSP 3724 | NTEP/Univ. of Minnesota |
| *57 | Nu Destiny | NTEP standard |
| *58 | Reveille | NTEP standard |
| *59 | America | NTEP standard |
| *60 | Mystere | ProSeeds Marketing |
| *61 | Diva | ProSeeds Marketing |
| *62 | Guinness | ProSeeds Marketing |
| *63 | Zinfandel (LTP-2949) | Lebanon Seaboard Corp. |
| *64 | Shiraz (LTP-73) | Blue Mountain Seed |
| 65 | PST-102-307 | Seeds Inc |
| 66 | PST-102-1011 | Seeds Inc |

| No. | Entry | Sponsor |
|---|---|---|
| 67 | 3261 | Mountain View Seeds |
| *68 | Rhythm | DLF International Seeds |
| *69 | Harmonie | DLF International Seeds |
| *70 | Award | Jacklin/ Simplot |
| *71 | Rugby II | Jacklin/ Simplot |
| 72 | NACRS-05-A | Columbia River Seed |
| *73 | Denim | Columbia River Seed |
| 74 | NACRS-05-C | Columbia River Seed |
| 75 | NACRS-05-B | Columbia River Seed |
| *76 | Wildwood | Columbia River Seed |
| *77 | Yankee (NA-3271) | Columbia River Seed |
| *78 | Corsair (NA-3249) | Columbia River Seed |
| 79 | A98-689 | Columbia River Seed |
| *80 | Arrowhead (NA-3261) | Columbia River Seed |
| *81 | Cadet | Columbia River Seed |
| *82 | Blackberry | Turf Merchants, Inc. |
| *83 | Blueberry | Turf Merchants, Inc. |
| *84 | Bewitched | Turf Merchants, Inc. |
| *85 | Bonaire | Turf Merchants, Inc. |
| *86 | Bravado | Turf Merchants, Inc. |
| *87 | Wild Horse (A97-890) | NTEP/ Blue Mountain Seed |
| *88 | Everglade | NTEP/ Jacklin Simplot |
| *89 | Everest | NTEP/ Jacklin Simplot |
| *90 | Impact | NTEP/ Jacklin Simplot |
| *91 | Beyond | NTEP/ Jacklin Simplot |
| *92 | Moonshadow | URI Standard |

*URI Kentucky Bluegrass Trial 2008 Data*

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LSD | 1.9 | 1.9 | 1.1 | 1.9 | 2 | 2.4 | 1.7 | 1.9 | 2.9 | 1.8 | 26.3 | 1.16 | 2.6 | 2.1 | 1.8 |
| **Entry** | **March Quality** | **Spring green-up** | **April Quality** | **early May Quality** | **Late May Quality** | **Seed Heads** | **June Quality** | **July Quality** | **Dollar-spot** | **August quality** | **Summer Cover** | **Genetic color** | **Red thread** | **mesotrione** | **Season Quality** |
| STR2451 | 4.0 | 2.0 | 4.0 | 6.3 | 5.7 | 1.0 | 6.3 | 7.0 | 7.0 | 7.0 | 100.0 | 7.3 | 6.3 | 4.3 | 5.8 |
| STR2278 | 4.0 | 2.0 | 4.0 | 5.7 | 5.7 | 1.0 | 6.3 | 6.7 | 6.0 | 7.0 | 96.7 | 7.7 | 8.0 | 5.0 | 5.6 |
| STR296324 | 3.7 | 2.0 | 4.0 | 6.3 | 6.0 | 3.0 | 6.0 | 6.3 | 6.7 | 6.3 | 96.7 | 7.7 | 5.7 | 6.7 | 5.5 |
| STR2703 | 6.7 | 8.0 | 6.7 | 8.3 | 5.3 | 6.7 | 6.0 | 6.0 | 5.3 | 6.0 | 88.3 | 8.3 | 5.0 | 5.7 | 6.4 |
| STR2844 | 3.7 | 3.0 | 4.0 | 5.3 | 4.7 | 1.3 | 4.3 | 5.3 | 2.7 | 6.3 | 73.3 | 8.0 | 3.3 | 5.3 | 4.8 |
| STR235 | 3.7 | 2.7 | 4.0 | 6.0 | 6.7 | 7.0 | 8.0 | 7.0 | 6.0 | 6.7 | 86.7 | 7.3 | 4.7 | 4.7 | 6.0 |
| EXP#A00-247 | 3.7 | 3.3 | 4.0 | 5.3 | 5.3 | 1.7 | 6.0 | 6.3 | 5.3 | 6.3 | 91.7 | 5.7 | 6.3 | 4.7 | 5.3 |
| NA-3257 | 3.3 | 3.3 | 4.7 | 6.7 | 5.3 | 2.0 | 5.3 | 5.7 | 4.3 | 6.0 | 76.7 | 8.3 | 4.3 | 6.3 | 5.3 |
| EXP#H01-229 | 3.3 | 4.3 | 5.0 | 7.3 | 6.7 | 6.0 | 7.0 | 7.7 | 5.3 | 7.3 | 90.0 | 9.0 | 3.0 | 5.0 | 6.3 |
| Glenmont | 4.7 | 4.3 | 4.7 | 7.3 | 5.7 | 2.0 | 5.7 | 6.0 | 6.0 | 6.3 | 86.7 | 7.7 | 4.7 | 4.3 | 5.8 |
| Hallmark | 4.7 | 3.3 | 4.3 | 5.3 | 5.0 | 1.3 | 6.7 | 6.3 | 6.0 | 6.0 | 83.3 | 4.0 | 3.7 | 5.3 | 5.5 |
| BAR PP 0468 | 4.0 | 2.3 | 4.0 | 6.3 | 5.3 | 1.3 | 7.3 | 7.7 | 8.0 | 6.7 | 98.3 | 6.0 | 6.3 | 5.7 | 5.9 |
| Baronie | 6.0 | 4.7 | 4.3 | 7.7 | 5.0 | 2.3 | 6.3 | 5.0 | 4.7 | 5.3 | 76.7 | 5.7 | 6.0 | 4.0 | 5.7 |
| Bariris | 5.0 | 3.3 | 4.3 | 6.7 | 6.3 | 6.0 | 6.0 | 5.7 | 3.7 | 5.7 | 73.3 | 5.3 | 3.3 | 4.7 | 5.7 |
| Barimpala | 8.0 | 6.3 | 6.0 | 8.3 | 5.7 | 7.3 | 5.3 | 4.0 | 2.3 | 5.7 | 65.0 | 7.7 | 7.7 | 7.0 | 6.1 |
| BAR VV 8536 | 3.7 | 3.7 | 5.0 | 6.3 | 5.3 | 1.0 | 5.7 | 5.0 | 3.3 | 5.3 | 80.0 | 6.0 | 5.0 | 4.0 | 5.2 |
| Barrister | 2.7 | 2.0 | 4.3 | 6.0 | 7.0 | 4.3 | 6.0 | 6.3 | 3.3 | 6.7 | 69.3 | 6.0 | 5.0 | 5.7 | 5.6 |
| Argos | 4.3 | 5.3 | 4.7 | 6.7 | 5.3 | 2.3 | 5.3 | 4.0 | 2.0 | 5.0 | 60.0 | 6.0 | 5.0 | 6.0 | 5.0 |
| H98-768 | 2.7 | 2.3 | 4.0 | 5.3 | 5.7 | 2.0 | 5.7 | 7.0 | 7.3 | 7.7 | 100.0 | 5.0 | 5.3 | 4.7 | 5.4 |
| A03-77 | 4.7 | 5.3 | 5.3 | 5.7 | 6.0 | 4.3 | 5.0 | 6.3 | 5.3 | 6.0 | 90.0 | 6.0 | 4.0 | 5.0 | 5.6 |
| H98-46 | 3.7 | 3.7 | 4.0 | 5.7 | 5.3 | 1.3 | 5.0 | 5.3 | 5.3 | 7.3 | 95.0 | 5.7 | 6.0 | 5.0 | 5.2 |
| | | | | | | | | | | | | | | | |
| P-105 | 4.0 | 3.3 | 4.0 | 5.7 | 7.0 | 4.7 | 6.7 | 6.3 | 4.3 | 7.0 | 76.7 | 5.7 | 4.7 | 5.0 | 5.8 |
| 5.0336 | 6.0 | 6.3 | 5.0 | 5.3 | 4.0 | 2.0 | 5.3 | 4.0 | 1.7 | 3.7 | 46.7 | 2.7 | 4.7 | 3.0 | 4.8 |
| Midnight Star | 5.7 | 5.0 | 5.7 | 5.3 | 5.0 | 4.7 | 4.7 | 5.0 | 4.0 | 7.7 | 81.7 | 4.3 | 3.0 | 6.7 | 5.6 |
| 102-983 | 4.7 | 3.7 | 3.7 | 4.0 | 4.0 | 2.0 | 4.0 | 3.7 | 1.0 | 4.3 | 46.7 | 4.7 | 4.3 | 6.7 | 4.0 |
| 1025-117 | 4.3 | 4.0 | 4.7 | 4.7 | 5.7 | 4.3 | 5.7 | 5.3 | 2.0 | 6.3 | 61.7 | 6.3 | 4.7 | 6.0 | 5.2 |
| 102-295 | 3.3 | 4.7 | 4.7 | 4.7 | 5.7 | 4.3 | 5.7 | 4.3 | 1.3 | 4.3 | 46.7 | 4.3 | 3.3 | 7.0 | 4.7 |
| 102-1011 | 5.3 | 4.7 | 5.0 | 4.7 | 3.3 | 3.7 | 3.7 | 3.0 | 1.0 | 5.3 | 61.7 | 7.0 | 5.0 | 3.0 | 4.3 |
| Midnight II | 2.3 | 1.7 | 4.0 | 4.3 | 5.3 | 7.0 | 6.0 | 6.3 | 3.3 | 6.7 | 76.7 | 5.7 | 5.3 | 5.3 | 5.0 |
| Low Mow | 3.0 | 4.3 | 4.3 | 6.3 | 5.3 | 5.0 | 4.7 | 5.7 | 3.0 | 6.3 | 76.7 | 6.0 | 3.7 | 4.0 | 5.1 |
| 102-145 | 4.7 | 4.7 | 4.7 | 4.7 | 4.3 | 2.3 | 4.7 | 5.7 | 2.0 | 5.7 | 50.0 | 7.7 | 5.0 | 5.3 | 4.9 |
| 1A1-199 | 1.7 | 2.3 | 4.0 | 6.0 | 5.3 | 5.7 | 6.0 | 6.7 | 5.0 | 5.7 | 83.3 | 8.3 | 5.0 | 6.7 | 5.0 |

| Entry | March Quality | Spring green-up | April Quality | early May Quality | Late May Quality | Seed Heads | June Quality | July Quality | Dollar-spot | August quality | Summer Cover | Genetic color | Red thread | mesotrione | Season Quality |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prosperity | 1.3 | 1.3 | 4.0 | 5.0 | 6.3 | 4.3 | 7.0 | 6.3 | 3.3 | 6.3 | 60.0 | 6.7 | 4.3 | 7.0 | 5.2 |
| Full Moon | 2.7 | 4.3 | 4.7 | 5.7 | 4.0 | 3.7 | 4.0 | 3.0 | 1.7 | 5.3 | 61.7 | 8.3 | 4.3 | 5.7 | 4.2 |
| 102-360 | 4.0 | 4.0 | 4.3 | 3.0 | 3.3 | 1.7 | 3.0 | 4.3 | 3.7 | 4.3 | 53.3 | 6.0 | 3.7 | 4.7 | 3.8 |
| High Noon | 3.3 | 5.0 | 4.7 | 6.7 | 6.0 | 2.7 | 5.7 | 4.7 | 3.7 | 4.3 | 61.7 | 7.3 | 4.3 | 5.3 | 5.0 |
| 101-390 | 2.0 | 3.3 | 4.3 | 6.0 | 6.7 | 3.7 | 7.3 | 5.7 | 3.7 | 5.3 | 58.3 | 6.0 | 3.0 | 8.3 | 5.3 |
| Moonshine | 4.3 | 5.3 | 5.3 | 6.3 | 5.3 | 2.0 | 5.3 | 4.7 | 2.0 | 5.0 | 68.3 | 7.0 | 5.7 | 4.7 | 5.2 |
| 103-585 | 4.0 | 4.3 | 5.0 | 5.7 | 6.3 | 2.3 | 6.7 | 6.3 | 3.3 | 7.7 | 76.7 | 9.0 | 3.7 | 4.7 | 6.0 |
| Moonbeam | 4.0 | 3.0 | 4.3 | 6.0 | 5.7 | 4.3 | 6.0 | 6.0 | 5.3 | 6.7 | 80.0 | 7.3 | 4.3 | 7.3 | 5.5 |
| 102-965 | 2.0 | 3.3 | 4.3 | 6.3 | 5.3 | 6.7 | 6.0 | 6.0 | 5.0 | 6.0 | 83.3 | 7.7 | 3.7 | 4.7 | 5.1 |
| 102-45 | 4.0 | 4.0 | 5.0 | 4.7 | 5.7 | 1.7 | 5.0 | 4.7 | 1.0 | 5.3 | 53.3 | 5.0 | 3.7 | 6.0 | 4.9 |
| 103-68 | 1.7 | 2.7 | 4.0 | 5.7 | 4.3 | 4.7 | 5.0 | 5.7 | 6.0 | 6.3 | 86.7 | 6.0 | 4.3 | 6.0 | 4.7 |
| Deepblue | 5.7 | 5.7 | 5.0 | 6.7 | 5.7 | 4.3 | 5.7 | 5.3 | 4.0 | 6.0 | 85.0 | 8.3 | 5.0 | 4.7 | 5.7 |
| Blue-riffic | 2.0 | 3.3 | 4.7 | 5.7 | 6.0 | 2.7 | 5.3 | 5.0 | 4.0 | 7.3 | 86.7 | 7.7 | 2.7 | 3.3 | 5.1 |
| Blue-tastic | 5.0 | 2.7 | 4.7 | 5.7 | 5.0 | 3.0 | 5.3 | 6.0 | 5.7 | 6.0 | 86.7 | 5.0 | 6.3 | 6.0 | 5.4 |
| Quantum Leap | 1.7 | 2.3 | 4.0 | 4.7 | 5.3 | 5.3 | 4.3 | 4.7 | 1.3 | 6.3 | 56.7 | 2.0 | 5.7 | 6.7 | 4.4 |
| Northstar | 2.7 | 2.7 | 4.3 | 4.7 | 6.0 | 3.0 | 5.0 | 6.0 | 4.0 | 6.3 | 71.7 | 6.0 | 4.3 | 4.0 | 5.0 |
| Moonlight | 4.7 | 3.7 | 5.0 | 6.3 | 8.3 | 4.0 | 7.0 | 7.3 | 7.0 | 7.7 | 96.7 | 5.3 | 6.7 | 7.0 | 6.6 |
| Liberator | 2.3 | 2.3 | 4.0 | 4.7 | 7.0 | 5.0 | 6.3 | 6.3 | 3.3 | 7.7 | 85.0 | 7.7 | 5.7 | 5.3 | 5.5 |
| Shamrock | 5.7 | 5.3 | 4.7 | 6.7 | 5.0 | 3.0 | 4.7 | 4.0 | 2.3 | 5.3 | 68.3 | 6.0 | 5.7 | 5.7 | 5.1 |
| Midnight | 2.7 | 2.0 | 4.3 | 4.3 | 5.7 | 6.7 | 5.0 | 6.7 | 3.7 | 7.0 | 90.0 | 6.3 | 5.3 | 4.7 | 5.1 |
| Kenblue | 4.0 | 7.3 | 3.7 | 3.3 | 1.0 | 9.0 | 2.0 | 4.3 | 9.0 | 7.3 | 96.7 | 5.3 | 1.7 | 4.7 | 3.7 |
| MSP 3722 | 5.0 | 4.0 | 4.3 | 5.7 | 6.0 | 2.0 | 6.3 | 6.7 | 5.3 | 6.7 | 83.3 | 4.0 | 4.7 | 5.0 | 5.8 |
| MSP 3723 | 2.7 | 2.3 | 4.3 | 6.3 | 5.7 | 2.3 | 5.0 | 7.0 | 6.7 | 7.0 | 96.7 | 7.3 | 5.3 | 4.7 | 5.4 |
| MSP 3724 | 2.3 | 1.3 | 4.0 | 5.3 | 6.0 | 3.0 | 6.3 | 7.3 | 7.3 | 7.7 | 100.0 | 8.7 | 5.7 | 4.7 | 5.6 |
| Nu Destiny | 2.3 | 2.7 | 4.0 | 4.3 | 6.3 | 6.0 | 5.3 | 5.7 | 2.3 | 6.3 | 66.7 | 7.0 | 4.0 | 5.7 | 4.9 |
| Reveille | 2.7 | 2.0 | 3.3 | 4.7 | 2.7 | 5.3 | 3.7 | 3.3 | 2.0 | 4.3 | 58.3 | 6.0 | 1.0 | 4.0 | 3.5 |
| America | 2.0 | 2.7 | 4.0 | 5.0 | 5.3 | 1.7 | 6.3 | 7.3 | 6.7 | 7.0 | 98.3 | 5.0 | 5.0 | 5.7 | 5.3 |
| Mystere | 7.0 | 8.0 | 6.0 | 8.0 | 5.0 | 5.7 | 6.0 | 7.7 | 7.7 | 8.0 | 96.7 | 5.7 | 5.0 | 8.0 | 6.8 |
| Diva | 3.0 | 3.3 | 4.7 | 7.3 | 6.0 | 1.3 | 5.7 | 6.3 | 4.7 | 7.0 | 96.7 | 8.3 | 5.7 | 5.7 | 5.7 |
| Guinness | 4.7 | 4.7 | 5.7 | 6.0 | 6.0 | 2.3 | 4.7 | 5.0 | 3.3 | 5.3 | 71.7 | 5.0 | 3.3 | 3.7 | 5.3 |
| LTP-2949 | 5.7 | 4.0 | 5.0 | 5.3 | 6.0 | 4.0 | 6.3 | 7.3 | 5.3 | 7.7 | 90.0 | 6.0 | 6.7 | 6.0 | 6.2 |
| LTP-73 | 5.0 | 4.3 | 5.0 | 6.0 | 6.0 | 7.3 | 6.0 | 6.7 | 4.7 | 6.3 | 90.0 | 5.0 | 4.0 | 6.7 | 5.9 |
| PST-102-307 | 5.7 | 5.3 | 5.0 | 7.0 | 4.0 | 4.3 | 4.7 | 5.0 | 3.3 | 4.7 | 73.3 | 5.3 | 6.7 | 3.7 | 5.1 |
| PST-102-1011 | 4.7 | 5.3 | 4.7 | 5.7 | 3.3 | 3.0 | 4.3 | 3.3 | 1.3 | 4.7 | 58.3 | 6.0 | 5.3 | 3.0 | 4.4 |
| 3261 | 4.0 | 3.3 | 4.7 | 6.7 | 5.7 | 2.0 | 4.7 | 5.0 | 1.7 | 5.3 | 60.0 | 7.7 | 1.7 | 5.3 | 5.1 |

| Entry | March Quality | Spring green-up | April Quality | early May Quality | Late May Quality | Seed Heads | June Quality | July Quality | Dollar-spot | August quality | Summer Cover | Genetic color | Red thread | mesotrione | Season Quality |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rhythm | 4.0 | 3.0 | 4.0 | 5.7 | 6.0 | 6.7 | 5.3 | 5.0 | 2.0 | 5.7 | 65.0 | 5.0 | 6.3 | 5.3 | 5.1 |
| Harmonie | 2.7 | 2.0 | 4.0 | 6.3 | 6.0 | 5.0 | 6.0 | 4.7 | 1.7 | 4.7 | 53.3 | 9.0 | 3.0 | 4.0 | 4.9 |
| Award | 4.0 | 2.7 | 4.0 | 5.0 | 6.0 | 5.7 | 4.3 | 4.3 | 2.7 | 6.0 | 63.3 | 5.0 | 6.0 | 6.0 | 4.8 |
| Rugby II | 4.3 | 4.0 | 4.7 | 6.3 | 6.0 | 3.3 | 5.7 | 4.3 | 3.0 | 5.3 | 65.0 | 7.7 | 4.7 | 6.3 | 5.2 |
| NACRS-05-A | 5.7 | 5.7 | 5.7 | 6.0 | 4.3 | 5.3 | 4.7 | 4.0 | 1.3 | 4.0 | 43.3 | 6.7 | 4.0 | 4.0 | 4.9 |
| Denim | 3.0 | 3.7 | 4.7 | 6.3 | 6.0 | 1.0 | 4.7 | 5.3 | 4.3 | 4.7 | 70.0 | 4.3 | 5.3 | 5.3 | 5.0 |
| NACRS-05-C | 4.0 | 5.7 | 4.3 | 6.0 | 3.7 | 2.3 | 4.0 | 3.3 | 3.0 | 6.3 | 66.7 | 6.7 | 5.7 | 4.7 | 4.5 |
| NACRS-05-B | 2.0 | 3.3 | 4.3 | 5.0 | 6.0 | 1.3 | 4.7 | 4.3 | 3.3 | 5.7 | 83.3 | 7.7 | 3.3 | 5.7 | 4.6 |
| Wildwood | 2.7 | 2.7 | 4.3 | 4.3 | 6.7 | 3.3 | 6.0 | 5.7 | 3.7 | 4.3 | 61.7 | 4.3 | 2.7 | 6.0 | 4.9 |
| NA-3271 | 4.3 | 4.0 | 4.7 | 6.7 | 7.3 | 5.0 | 6.7 | 6.0 | 4.7 | 6.7 | 85.0 | 7.3 | 4.3 | 5.7 | 6.0 |
| NA-3249 | 5.0 | 6.0 | 5.7 | 4.3 | 4.3 | 4.0 | 3.3 | 4.3 | 1.7 | 5.0 | 63.3 | 7.3 | 6.3 | 5.7 | 4.6 |
| A98-689 | 3.7 | 4.0 | 4.3 | 7.0 | 5.3 | 1.0 | 4.3 | 4.7 | 2.0 | 5.3 | 66.7 | 7.3 | 3.0 | 5.0 | 5.0 |
| NA-3261 | 3.0 | 3.7 | 4.7 | 6.7 | 5.7 | 2.7 | 5.0 | 5.0 | 1.3 | 4.3 | 60.0 | 4.3 | 2.0 | 4.3 | 4.9 |
| Cadet | 3.7 | 5.0 | 4.7 | 5.3 | 4.7 | 3.0 | 4.3 | 4.7 | 1.7 | 5.3 | 70.0 | 7.7 | 3.0 | 5.0 | 4.7 |
| Blackberry | 4.3 | 4.7 | 4.3 | 5.7 | 5.0 | 1.7 | 4.7 | 5.3 | 5.0 | 6.0 | 91.7 | 8.0 | 5.7 | 6.7 | 5.0 |
| Blueberry | 2.7 | 2.3 | 4.0 | 5.0 | 6.3 | 3.7 | 5.7 | 6.7 | 3.7 | 7.0 | 76.7 | 7.0 | 5.0 | 7.7 | 5.3 |
| Bewitched | 3.0 | 1.7 | 4.3 | 4.7 | 7.0 | 3.0 | 6.7 | 7.3 | 6.0 | 7.3 | 98.3 | 6.0 | 5.3 | 5.0 | 5.8 |
| Bonaire | 5.0 | 6.0 | 5.7 | 6.3 | 4.7 | 4.0 | 5.0 | 4.7 | 2.7 | 5.7 | 81.7 | 7.0 | 5.0 | 3.7 | 5.3 |
| Bravado | 5.3 | 5.0 | 5.0 | 5.3 | 5.0 | 2.3 | 5.7 | 6.3 | 6.0 | 6.7 | 96.7 | 7.7 | 4.3 | 6.0 | 5.6 |
| | | | | | | | | | | | | | | | |
| A97-890 | 6.0 | 6.0 | 5.7 | 7.0 | 5.3 | 3.0 | 5.0 | 4.7 | 2.7 | 5.0 | 61.7 | 3.0 | 6.0 | 4.7 | 5.5 |
| Everglade | 3.0 | 3.0 | 4.7 | 5.3 | 6.3 | 3.7 | 6.0 | 5.3 | 2.0 | 6.0 | 73.3 | 9.0 | 5.0 | 6.0 | 5.2 |
| Everest | 3.3 | 2.7 | 4.7 | 5.3 | 7.0 | 5.3 | 5.7 | 5.3 | 2.7 | 6.3 | 76.7 | 5.3 | 5.0 | 5.0 | 5.4 |
| Impact | 3.3 | 2.7 | 4.7 | 5.3 | 6.7 | 5.7 | 5.0 | 5.3 | 3.0 | 6.3 | 78.3 | 6.7 | 5.0 | 5.0 | 5.2 |
| Beyond | 4.0 | 4.0 | 5.0 | 5.0 | 5.0 | 5.3 | 5.3 | 4.3 | 3.3 | 6.7 | 85.0 | 4.0 | 5.0 | 4.3 | 5.0 |
| Moonshadow | 4.7 | 3.3 | 4.7 | 6.3 | 5.7 | 4.3 | 6.0 | 7.0 | 6.3 | 6.3 | 98.3 | 8.0 | 5.0 | 5.7 | 5.8 |

**URI 2006 Kentucky Bluegrass Trial**

The top of the map is north. The ryegrass trial should be behind you.

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | 58 | 15 | 89 | 78 | 87 | 34 | 90 | 72 | 22 | 84 | 45 | 76 | 52 | 40 | 80 | 11 | 16 | 59 | 25 | 73 | 65 | 74 |
| 39 | 19 | 2 | 28 | 91 | 3 | 31 | 55 | 20 | 64 | 57 | 67 | 79 | 46 | 83 | 81 | 48 | 47 | 85 | 41 | 4 | 61 | 21 |
| 32 | 35 | 42 | 53 | 44 | 69 | 5 | 17 | 63 | 27 | 86 | 62 | 75 | 30 | 38 | 18 | 54 | 26 | 68 | 13 | 51 | 36 | 7 |
| 9 | 50 | 56 | 23 | 66 | 14 | 92 | 12 | 33 | 24 | 77 | 49 | 6 | 88 | 60 | 10 | 8 | 37 | 71 | 43 | 1 | 82 | 70 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 |
| 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 |
| 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 |
| 75 | 32 | 6 | 13 | 17 | 3 | 85 | 74 | 59 | 8 | 56 | 73 | 15 | 51 | 5 | 11 | 24 | 34 | 69 | 39 | 61 | 33 | 18 |
| 2 | 38 | 25 | 45 | 31 | 1 | 48 | 12 | 54 | 28 | 66 | 79 | 83 | 64 | 84 | 71 | 4 | 88 | 37 | 55 | 26 | 82 | 22 |
| 58 | 9 | 47 | 49 | 81 | 23 | 27 | 46 | 40 | 43 | 53 | 41 | 35 | 42 | 30 | 29 | 80 | 14 | 67 | 86 | 50 | 44 | 70 |
| 77 | 72 | 63 | 10 | 16 | 76 | 52 | 89 | 91 | 20 | 78 | 65 | 87 | 7 | 68 | 57 | 90 | 36 | 60 | 21 | 62 | 19 | 92 |

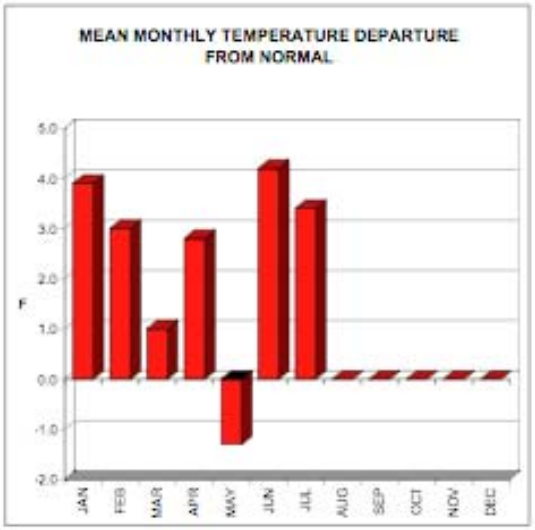
## 2008 WEATHER SUMMARY

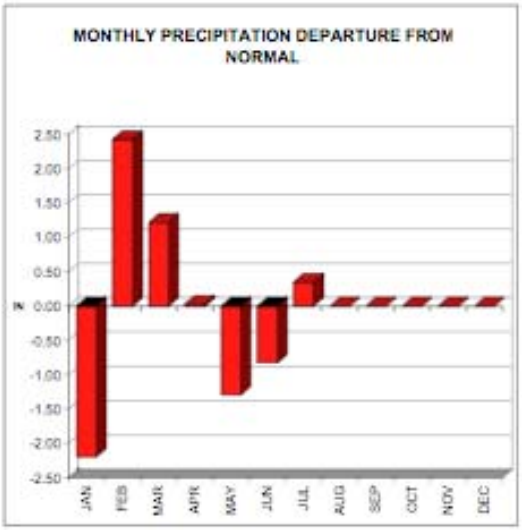
Kingston, Rhode Island

| | Temperature (Degrees F) | | | | | | | Precipitation (In.) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Extremes | | Growing Deg. Days | | | Days Over | | Snowfall | | Evap. |
| Month | Avg. | Dep.* | Mean Max. | Mean Min. | Max. | Min. | (base 50) | Total | Dep.* | .10" | .50" | In. | Dep.* | (In.) |
| JAN | 32.5 | 3.9 | 43.0 | 21.9 | 62 | 3 | 0 | 2.52 | -2.20 | 4 | 3 | 2.2 | -6.7 | ... |
| FEB | 33.4 | 3.0 | 43.6 | 23.1 | 59 | 9 | 0 | 6.26 | 2.43 | 10 | 4 | 5.8 | -2.8 | ... |
| MAR | 38.7 | 1.0 | 49.4 | 28.0 | 60 | 17 | 0 | 6.14 | 1.22 | 9 | 5 | 1.1 | -2.8 | ... |
| APR | 49.4 | 2.8 | 61.4 | 37.4 | 75 | 23 | 75 | 4.74 | 0.03 | 6 | 4 | 0.0 | -1.1 | ... |
| MAY | 55.2 | -1.3 | 67.1 | 43.3 | 77 | 27 | 180 | 2.85 | -1.29 | 6 | 4 | ... | ... | 4.69 |
| JUN | 69.5 | 4.2 | 81.1 | 57.9 | 95 | 45 | 594 | 3.15 | -0.83 | 7 | 3 | ... | ... | 5.51 |
| JUL | 74.1 | 3.4 | 84.6 | 63.5 | 91 | 52 | 752 | 3.66 | 0.35 | 6 | 4 | ... | ... | 6.21 |
| AUG | | | | | | | | | | | | | | |
| SEP | | | | | | | | | | | | | | |
| OCT | | | | | | | | | | | | | | |
| NOV | | | | | | | | | | | | | | |
| DEC | | | | | | | | | | | | | | |
| **AVG.** | | | | | | | | | | | | | | |
| **TOTAL** | | | | | | | | | | | | | | |

LAST SPRING FREEZE: MAY 1 (27°F) FIRST FALL FREEZE: GROWING SEASON:

*Departures from normal are based on the period 1971 - 2000 (30 years) and are positive unless noted negative (-)



# 2008 University of Rhode Island New England Turfgrass Fungicide Guide

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**Associate Professor of Plant Pathology**

This guide lists the most *commonly used* active ingredients for controlling specific turfgrass diseases in New England, based on research conducted at URI, elsewhere and professional experience. Keep in mind that just because a chemical does not appear on this list does not mean that it is ineffective. This list is meant to serve as a guide, not a comprehensive manual. In the case of numerous diseases, many different chemicals can provide very effective control. In general, this guide does not discuss tank-mixed combinations in detail nor are rotational strategies for preventing resistance addressed. In addition, each disease may have very specific application or timing requirements that are not addressed in this *brief* summary. While many chemicals can be used against each disease, only those considered universally reliable at many tested sites, under curative conditions, are listed for each disease below. Fungicide efficacy depends on a wide range of factors, however, so this list should not be misconstrued as comprehensive.

This summary is not intended as a substitute for the advice of university extension or faculty professionals. It is solely a starting point. When in doubt, consult a qualified professional in regards to the use of a particular active ingredient against a specific disease. Rates are not included below as each situation may require a different recommended rate and not all formulations are based on the same rate specification. Please see the appropriate label for rate information. No endorsement is made in regard to brand name products vs. generic products. While every attempt is made to provide the most accurate information possible, it is up to the user of this information to confirm that the selected product is indeed registered for a specific use in the state or region in which it will be used. Registrations do periodically change and the user must ensure legal conformity. The label is the law. Use pesticides safely.

| ***Disease*** | ***Effective Fungicides (active ingredients )*** | ***Notes*** |
|---|---|---|
| | | |
| Anthracnose *Colletotrichum graminicola* | chlorothalonil<br>fludioxonil<br>iprodione<br>polyoxin-D<br>propiconazole<br>mancozeb<br>thiophanate-methyl | Anthracnose can be very difficult to control, particularly in the basal rot stage. Using full labeled rates, tankmixing and rotating chemicals is essential to minimizing it's spread. Aliette Signature/Prodigy Signature are also labeled for control of Anthracnose. |
| Brown Patch *Rhizoctonia solani* | azoxystrobin<br>chlorothalonil<br>flutolanil | Other fungicides are available that can be used, if necessary, but not are not as effective as those listed. |

| | | |
|---|---|---|
| | polyoxin-D<br>trifloxystrobin | |
| Copper Spot<br>*Gloeocercospora sorghi* | chlorothalonil<br>thiophanate-methyl | Primarily a problem on velvet bentgrass with excessive nitrogen. |
| Dollar Spot<br>*Sclerotinia homoeocarpa* | boscalid<br>chlorothalonil<br>fernarimol<br>iprodione<br>myclobutanil<br>propiconazole<br>thiophanate-methyl<br>triadimefon<br>vinclozolin | Pyraclastrobin can be used for suppressive disease control but not curatively. |
| Gray Snow Mold<br>*Typhula incarnata* | PCNB<br>iprodione +<br>cholorthalonil<br>flutolanil +<br>chlorothalonil<br>polyoxin-D +<br>thiophanate-methyl | Applications must be made prior to snowfall, preferably between Nov 15 and Dec 1.<br><br>In addition to those listed, many different tankmixed combinations of chemicals have been shown to be very effective. |
| Fairy Ring<br>*Numerous Basidiomycetes* | azoxystrobin<br>flutolanil | Efficacy is increased with wetting agents, "pitch-forking" and thorough watering. |
| Fusarium Blight<br>*Fusarium* spp. | iprodione<br>propiconazole<br>triadimefon<br>thiophanate-methyl | |
| Fusarium Patch<br>(aka Pink Snow Mold)<br>*Microdochium nivale* | PCNB<br>iprodione +<br>cholorthalonil<br>propiconazole<br>triadimefon + flutolanil or<br>trifloxystrobin<br>azoxystrobin | See Gray Snow Mold above.<br><br>With either Pink or Gray Snow mold, preventative fall applications should include at least two fungicides to give winter long disease control.<br><br>Fusarium patch stage easily control by single application of a systemic |
| Leaf Spot<br>*Drechslera* and *Bipolaris* | azoxystrobin<br>iprodione<br>mancozeb<br>vinclozolin | |

| | | |
|---|---|---|
| Necrotic Ring Spot<br>*Ophiosphaerella korrae* | azoxystrobin | Chemical must be watered in lightly to achieve best results. 2-4 applications may be required. DMI's and thiophanate-methyl have also shown efficacy against this disease. |
| Powdery Mildew<br>*Blumeria graminis* | mycolbutanil<br>propiconazole<br>triadimefon | |
| *Pythium* Blight<br>*(*summer/foliar blight) | fosetyl-Al<br>ethazole (etridiazole)<br>metalaxyl or mefanoxam<br>propamocarb | Fosetyl-Al and ethazole have limited effect when used curatively, they are much better suited for preventative application. |
| Root *Pythium*<br>(cool-season disease) | ethazole (etridiazole)<br>chloroneb<br>propamocarb | All fungicides must be watered in to the root zone for curative effect. |
| Red Thread<br>*Laetisaria fuciformis* | azoxystrobin<br>cholorthalonil<br>flutolanil<br>iprodione<br>propiconazole<br>triadimefon | An additional application of 0.5 N per M can allow for rapid recovery, in the absence of fungicide application. |
| Rusts<br>*Puccina graminis* | mycolbutanil<br>azoxystrobin<br>cholorthalonil<br>mancozeb<br>propiconazole<br>triadimefon | Increased fertility can dramatically increase disease recovery. |
| Smuts<br>*Ustilago striiformis* | fernarimol<br>myclobutanil<br>propiconazole<br>thiophanate-methyl<br>triadimefon | Fall applications are more effective than spring applications and chlorothalonil can exacerbate disease. Not very common, occasionally seen in Southern New England greens. |
| Summer Patch<br>*Magnaporthe poae* | azoxystrobin<br>thiophanate-methyl | Chemical must be watered in lightly to achieve best results. 2-4 applications may be required. DMI's have also shown efficacy against this disease. |
| Take-all Patch | azoxystrobin | Same as above |
| Yellow Patch<br>*Rhizoctonia cerealis* | See Brown Patch | Also known as Cool-season Brown Patch, it responds to similar fungicides as Brown Patch. |

| | | |
|---|---|---|
| Yellow Tuft<br>*Sclerophthera macrospora* | fosetyl-Al<br>metalaxyl or mefanoxam<br>propamocarb | A downy mildew, responds to chemicals in similar fashion to *Pythium.* |