

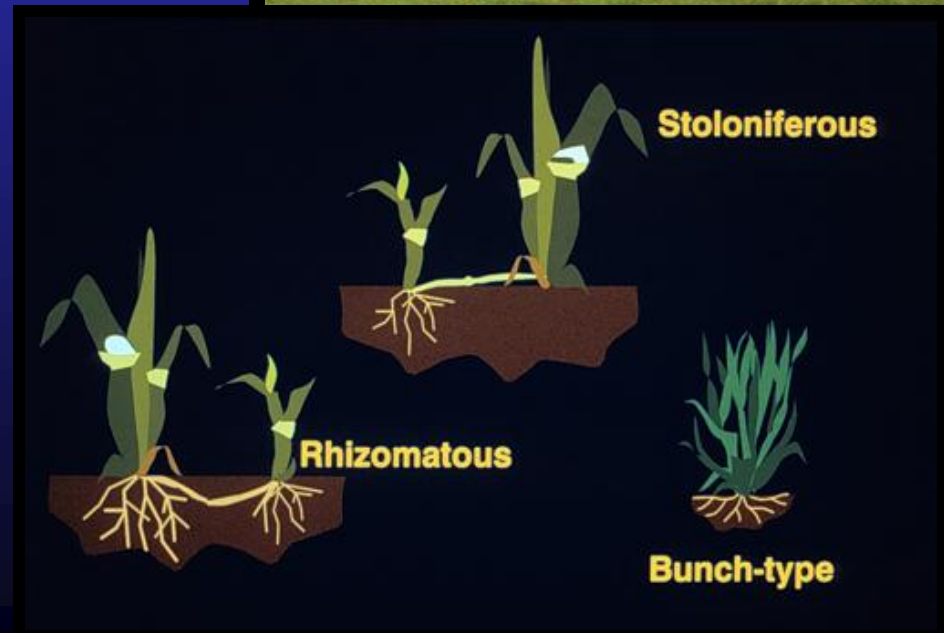
# The Truth about Bluegrass

ProGreen Expo  
*24 January 2008*

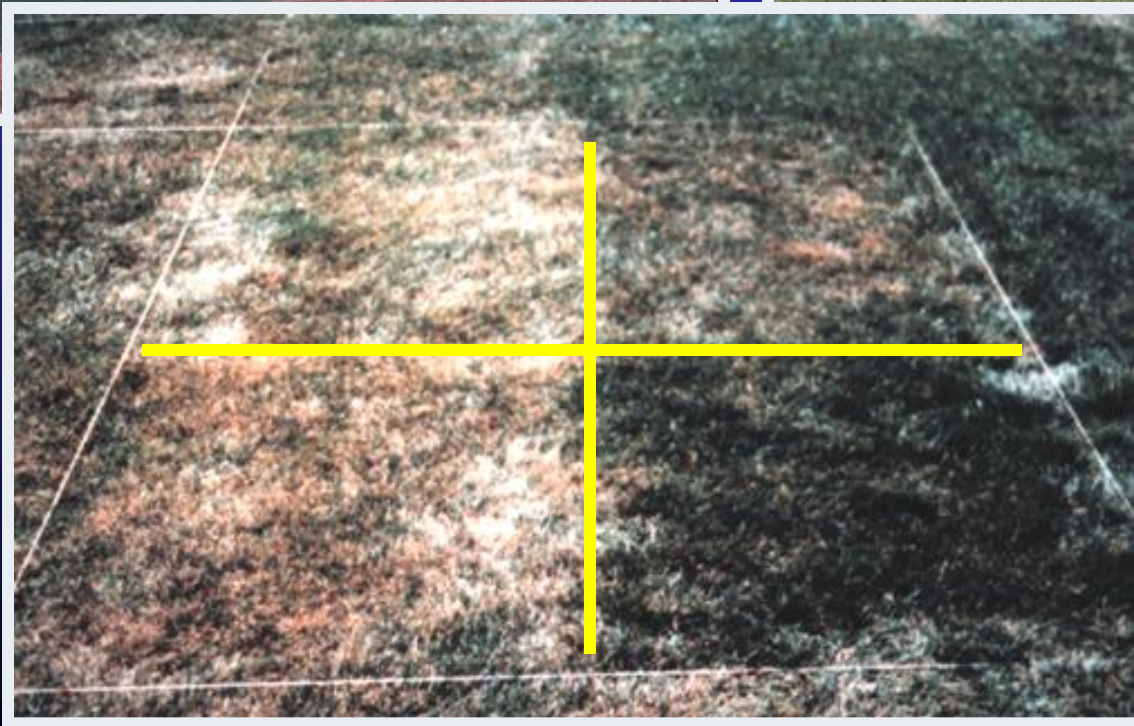
Tony Koski  
*Extension Turf Specialist*  
*Colorado State University*

# Kentucky bluegrass (*Poa pratensis*)

- High quality
- Great recuperator
- Sod-former
- Stress-resistant
- Thatch-former
- Poor shade tolerance
- Disease- and insect-prone?
- Higher water and N requirements???

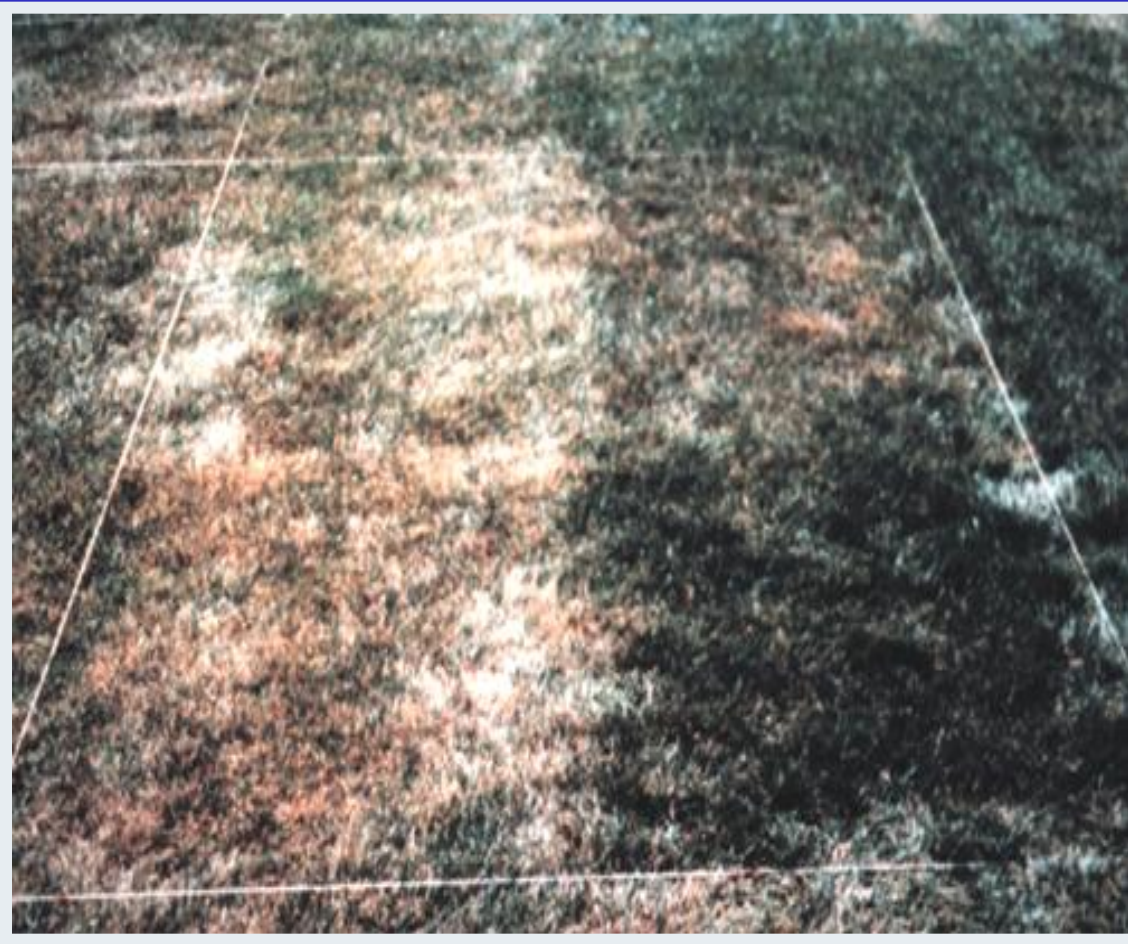


# KBG is drought resistant



**KBG cultivars vary in ability to remain green during extended drought**

# KBG Varieties for Drought Resistance



SR2000  
Livingston  
America  
Unique  
Apollo  
Showcase  
Brilliant  
Classic  
Compact

# Newer Kentucky Bluegrass Cultivars

*Excellent Quality (color, density, texture)*

## Excellent traffic tolerance

- ✓ Avalanche
- ✓ Award
- ✓ Midnight II
- ✓ NuDestiny
- ✓ Julia
- ✓ Moonlight
- ✓ Limousine
- ✓ Coventry
- ✓ Brilliant
- ✓ P105

## Fair to Good Traffic Tolerance

- ✓ Arcadia
- ✓ Awesome
- ✓ Barrister
- ✓ Impact
- ✓ Liberator
- ✓ Moonshadow
- ✓ Odyssey
- ✓ Perfection
- ✓ Total Eclipse

# Necrotic Ring Spot on KBG



# Ascochyta Leaf Blight on KBG



# Landscape Irrigation



The IA also estimates that more than 20 million acres of residential and commercial landscape are irrigated today, consuming approximately 20 million acre-feet of water a year.

# Drought Tolerance



- Can tolerate dehydration
- Often possess excellent dormancy mechanisms
- Good ability to recover from dormancy

## Examples:

- Kentucky bluegrass
- Buffalograss
- Bermudagrass
- Bromegrass
- Quackgrass



# Drought Avoidance

- Maintain growth when drought stressed
- Deep, extensive root systems
- High ratio of roots to shoots
- Xeromorphic characteristics (leaf rolling, hairy leaves, thick cuticle)
- May not possess good dormancy mechanism
- Recovery from extended, severe drought may be poor

## Examples:

- Tall fescue
- Perennial ryegrass
- St. Augustinegrass



Drought-stressed tall fescue

# Drought Escape

Plant completes its life cycle prior to the onset of drought

**Example:**

***Poa annua* var. *annua***



# Turfgrass Water Use



Total amount of water used for growth plus that lost by transpiration and evaporation from plant and soil surfaces.

J. B. Beard, 1973

*May or may not be related to drought resistance*

# Turfgrass ET Classification

<u>Relative Ranking</u>	<u>ET</u> <u>mm day<sup>-1</sup></u>
Very low	< 4.0
Low	4.0-4.9
Medium-low	5.0-5.9
Medium	6.0-6.9
Medium-high	7.0-7.9
High	8.0-8.9
Very high	>9.0

J. B. Beard, 1985



Tall fescue

Kentucky bluegrass, buffalograss

# Turfgrass Species ET\* Rates

Common Name	Scientific Name	ET* (mm day <sup>-1</sup> )	Inches/wk
Tall Fescue	<i>Festuca arundinacea</i>	7-13	2.0-3.8
Perennial Ryegrass	<i>Lolium perenne</i>	7-11	
St. Augustinegrass	<i>Stenotaphrum secundatum</i>	6-11	
Seashore Paspalum	<i>Paspalum vaginatum</i>	6-8	
Bahiagrass	<i>Paspalum notatum</i>	6-8	
Kikuyugrass	<i>Pennisetum clandestinum</i>	6-9	
Creeping Bentgrass	<i>Agrostis Palustris</i>	6-10	
Centipedegrass	<i>Eremochloa ophiuroides</i>	5-9	
Bermudagrass	<i>Cynodon spp.</i>	4-9	
Zoysiagrass	<i>Zoysia spp.</i>	5-8	
Kentucky Bluegrass	<i>Poa pratensis</i>	4-7	0.8-2.0
Buffalograss	<i>Buchloe dactyloides</i>	3-6	

\* ET rates when water is non-limiting; Potential Evapotranspiration

# Turf Survival Without Water



**BEST:** buffalograss, blue grama, bromegrass, wheatgrasses, bermudagrass can survive without ANY supplemental irrigation

**FAIR:** Kentucky bluegrass, fine fescues, bentgrass and zoysiagrass can become dormant and survive for many (3-6) months without irrigation; some thinning will occur

**POOR:** perennial ryegrass and tall fescue may survive 2-4 months without ANY irrigation, but will be severely thinned

**VERY POOR:** annual bluegrass

# Factors Affecting Drought Survival

- Condition/health of turf entering drought
- Exposure to sun, wind
- Soil type (better survival on fine-textured soils)
- Excess thatch will reduce survivability
- Varietal differences
- Traffic will reduce ability to survive prolonged drought







# Water Requirements of Annual Bedding Plants in CO

- 19 annuals tested
- 3 sites in CO
- Drip irrigation; mulched
- Irrigated using different percentages of bluegrass ET



A photograph of a plant with a white label. The label is rectangular with a double-line border and contains the text "100 %" on the top line and "ET" on the bottom line. The plant has small, light-colored flowers and is set against a dark background. A pink ribbon is visible across the middle of the image.

**100 %**  
**ET**









50 %  
ET





25 %  
ET







NO  
IRRIGATION



# Annual Lawn Irrigation Requirements

- *Colorado Front Range* -

Supplemental irrigation requirements for the following lawn grass species assume:

- “Normal” precipitation (10-11 inches, April-October) and summer temperatures
- Good irrigation coverage (80% efficient irrigation system coverage)
- Extended drought and/or higher temperatures increase water needs for ALL grasses
- Kentucky bluegrass (KBG) will need 24-26 inches of supplemental irrigation per growing season to produce a lawn of good to excellent quality.
- Lower (but acceptable) quality KBG lawns can be grown with as little as 15-20 inches of irrigation (with normal precipitation and good irrigation coverage)
- Tall fescue may need 10% less irrigation than KBG (20-22 inches) IF it can grow deep roots and substantial subsoil moisture exists
- Tall fescue may require MORE irrigation than KBG if planted on poor/shallow soil, when subsoil moisture is deficient, or where deep rooting does not occur
- Fine fescue lawns will require 18-20 inches (where it can form deep roots)
- Buffalograss and blue grama lawns will require 8-10 inches (1-2 inches of irrigation per growing month) for a GOOD quality lawn that will tolerate moderate traffic/use
- Bermudagrass irrigation requirement is similar to that of buffalograss, or slightly less
- Kentucky bluegrass, fine fescue, buffalograss and bermudagrass can become dormant and survive prolonged periods (1-2 months) without precipitation and irrigation; tall fescue lawns often die or become thin when deprived of water for similar time periods

*The first hybrid bluegrass, 'Reveille', was developed by Texas A&M University*



Kentucky bluegrass

+



Texas bluegrass

=



Hybrid Bluegrass

**'Reveille'**

1999

# Hybrid Bluegrass Heat Tolerance

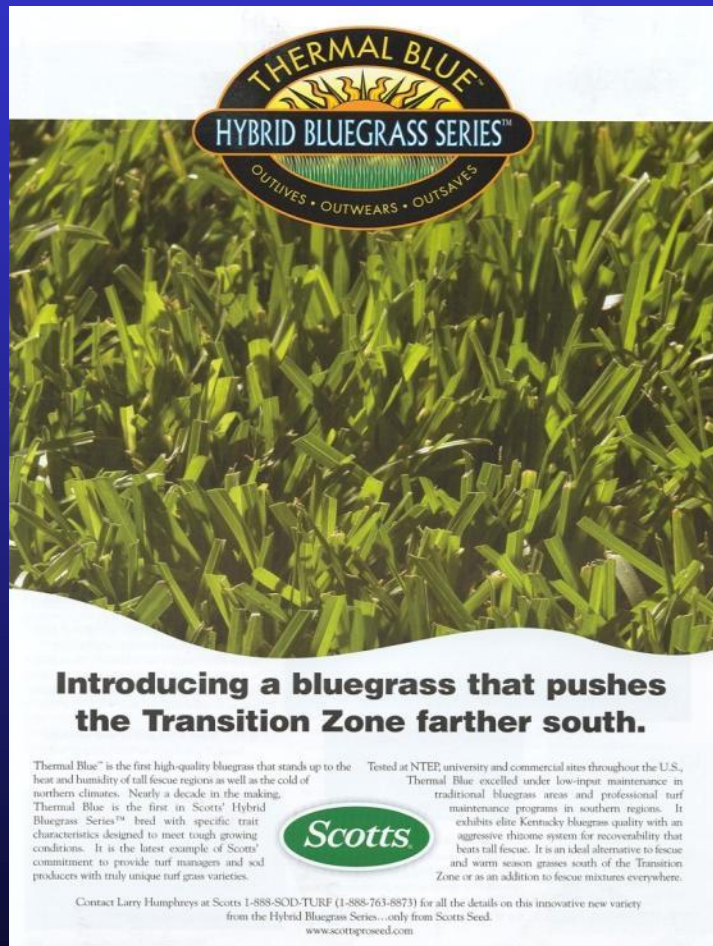
*Kansas State University*



- **'Thermal Blue'** remained green after 14 days at 104 F day/86 F night
- **'Dynasty'** tall fescue became dormant
- **'Apollo'** KBG became half dormant

Heat tolerance and drought resistance  
are not the same thing!

# Hybrid Bluegrass Varieties



**THERMAL BLUE™**  
**HYBRID BLUEGRASS SERIES™**  
OUTLIVES • OUTWEARS • OUTSAVES

**Introducing a bluegrass that pushes the Transition Zone farther south.**

Thermal Blue™ is the first high-quality bluegrass that stands up to the heat and humidity of tall fescue regions as well as the cold of northern climates. Nearly a decade in the making, Thermal Blue is the first in Scotts' Hybrid Bluegrass Series™ bred with specific trait characteristics designed to meet tough growing conditions. It is the latest example of Scotts' commitment to provide turf managers and sod producers with truly unique turf grass varieties.

Tested at NTEP, university and commercial sites throughout the U.S., Thermal Blue excelled under low-input maintenance in traditional bluegrass areas and professional turf maintenance programs in southern regions. It exhibits elite Kentucky bluegrass quality with an aggressive rhizome system for recoverability that beats tall fescue. It is an ideal alternative to fescue and warm season grasses south of the Transition Zone or as an addition to fescue mixtures everywhere.

**Scotts**

Contact Larry Humphreys at Scotts 1-888-SCD-TURF (1-888-763-8873) for all the details on this innovative new variety from the Hybrid Bluegrass Series...only from Scotts Seed.  
[www.scottsseed.com](http://www.scottsseed.com)

- Gardner Turfgrass  
Reveille
- The Scotts Company  
Thermal Blue  
Solar Green  
Thermal Blue Blaze  
Dura Blue
- Seed Research of Oregon  
Bandera, Spitfire
- Turf-Seed Inc.  
Longhorn
- Others  
Fire and Ice, Fahrenheit 90

# Hybrid Bluegrass Management



- **Mowing**  
*1.5-3 inches (or even lower!)*
- **Fertilization**  
Performs well at low (1-2 lbs/yr), but can be maintained under high fertility for heavy-use fields (3-5 lbs. N/year)
- **Irrigation**  
Good drought resistance and lower ET may save water with low-traffic turf, but ample irrigation is likely required under heavy use
- **Cultivation**  
Standard, as for other species and turf use situations
- **Pest Management**  
Billbugs may be a concern  
Disease should not be a problem in Colorado; wait and see as use increases



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<http://csuturf.colostate.edu>

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