

Turfgrass Species



**CLASSIFICATION OF TURFGRASSES,
FAMILIES, GENERA, SPECIES, SEASON AND
CLIMATE**

Turfgrass Taxonomy



- **Family- Poaceae (formerly Gramineae)**
- **Subfamily**
- **Tribe**
- **Genera**
- **Species**
- **Subspecies or variety**

Organization of Grass Family



- **Graminaceae or Poaceae**
- **Contains:**
 - 6 subfamilies
 - 25 tribes
 - 600 genera
 - 7500 species
- **Only a few dozen species in 3 subfamilies are adapted to turf use**

Festucoideae



- Festucoid grasses include all “cool-season” turfgrasses
- Optimal growth in temperature range of 60-75F
- Environmental adaptation is limited mostly by heat and drought stresses
- Principal genera are bluegrasses, fescues, ryegrasses and bentgrasses

Eragrostoideae



- Eragrostoid grasses include the “warm-season” turfgrasses zoysia and bermudagrass
- While warm-season grasses have optimum growth at 80-95F eragrostoids are slightly more cold tolerant than panicoids, the other warm season group
- Poleward adaptation is limited by intensity and duration of cold temperatures

Panicoideae



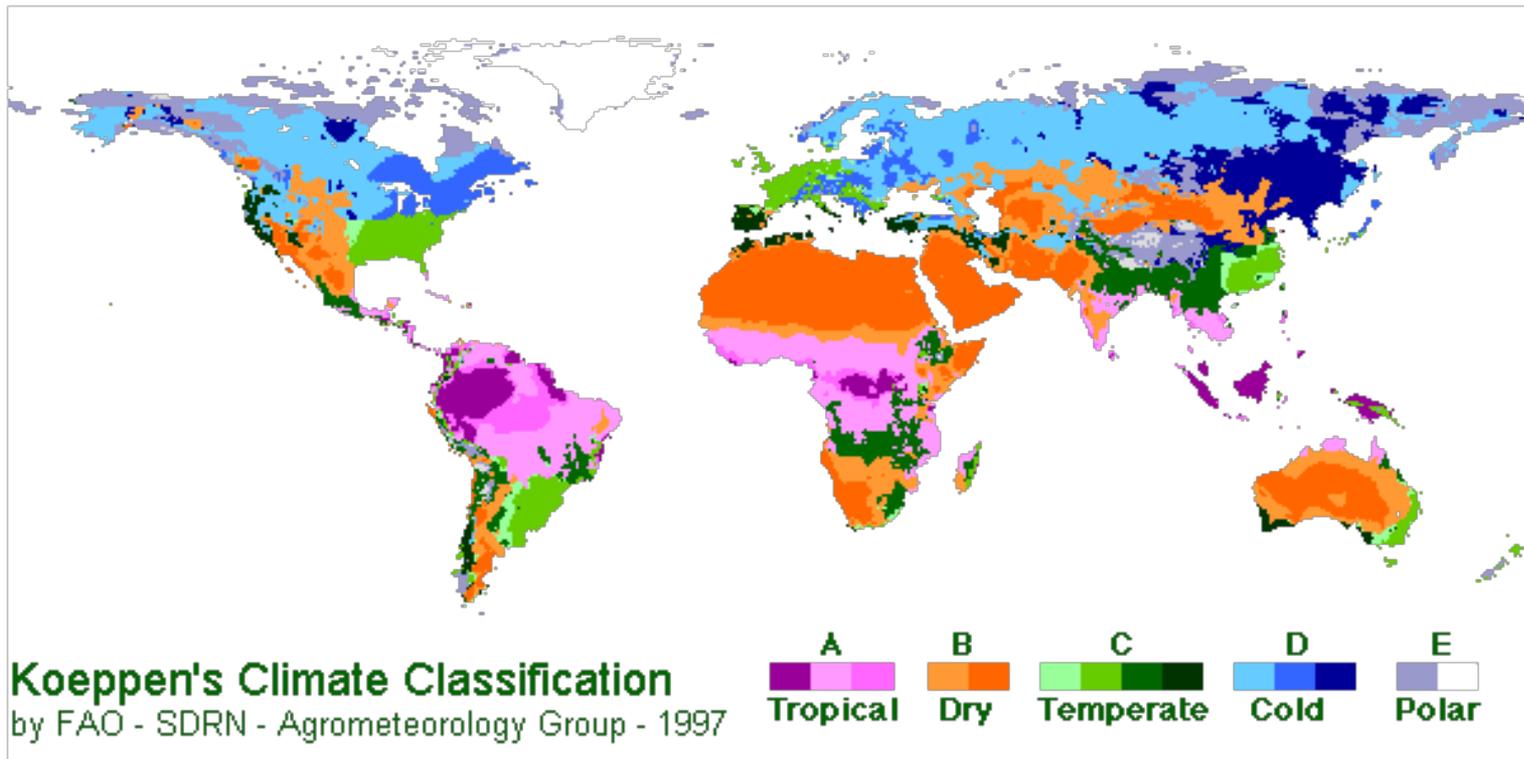
- Panicoid grasses include warm-season turfgrasses
- These are less cold tolerant than the eragrostoids and in the US occur primarily along the lower Atlantic and Gulf coasts
- Genera include bahiagrass, centipedegrass and St. Augustinegrass

Climatology



- **Temperature-based**
- **Moisture-based**
- **Turfgrass climatic adaptation**

World Climate Zones



Tropical Climates (A)



- Humid, frost-free belt from the equator to ~20 degrees north and south latitude
- Types of tropical climates
 - Tropical-wet (Ar) with a wet season of 10-12 months
 - Tropical wet and dry (Aw) with a dry season of more than 2 months

Subtropical Climates (C)



- Humid belt with at least eight months of $>50^{\circ}\text{F}$ average temperatures
- Subtropical humid (Cf) with wet summers and occurring on the east side of a continent
- Subtropical dry summer (Cs) with wet winters and dry summers occurring on the western side of continents
- Subtypes are hot (a) and cool (b) summers

Temperate Climates (D)



- Humid belt with average temperature $>50^{\circ}\text{F}$ for 4 to 7 months
- Temperate oceanic (Do) with mild winters and occurring on western side of continents
- Temperate continental with severe winters and occurring inland or on eastern side of continents
- Subtypes are hot (a) and cool (b) summers

Subarctic Climates (E)



- Also called boreal with an average temperature $>50^{\circ}\text{F}$ from 1 to 3 months per year
- Short cool summers and long cold winters and relatively low rainfall

Polar (F)



- Average temperature <50F all months of the year

Moisture-based Climate



- **Dry (B)**- occurs where evaporation exceeds annual rainfall
- Types are – arid (BW) and semi-arid (BS)
- Subtypes are cold (k) where a dry climate occurs in temperate and sub-arctic regions and hot (h) where a dry climate occurs in tropical and subtropical regions

Turfgrass Climatic Adaptation



- Cool-season grasses (festucoid) are generally adapted to temperate and subarctic climates
- Warm-season grasses (eragrostoid and panicoid) are generally adapted to tropical and subtropical climates
- Separating subtropical and temperate climates is the so-called “transition zone” where tall fescue is well adapted

Characterization of Turfgrasses



- Turfgrasses are generally grouped into seven groups

Fine Fescues



- Have fine-textured leaves that can appear almost needle-like when under stress

Creeping Red Fescue



- **Festuca rubra**
- **Rhizomatous species**
- **Adapted to**
 - Moderately shady
 - Well drained
 - Droughty
 - Infertile
 - Acidic
- **Intolerant of wet conditions and high fertility**

Chewings Fescue



- **Festuca rubra ssp. commutata Gaud**
- **Non-creeping bunch-type grass**
- **Otherwise similar to creeping red fescue**

Sheep and Hard Fescues



- **Related fine fescue species**
- **Growing in importance for turfgrasses**

Coarse Fescues



- Have coarse textured leaves that may be objectionable when mixed with finer textured turfgrasses

Tall Fescue



- **Festuca arundinaceae Schreb.**
- **Bunch-type grass**
- **Used for utility turf in temperate climates and for lawns in transitional and cool subtropical climates**

Meadow Fescue



- **Festuca elatior**
- **Similar to tall fescue but not widely used in the U.S.**

Bluegrasses



- **The best-known turfgrass in temperate zones in the U.S.**

Kentucky Bluegrass



- **Poa pratensis**
- **Rhizomatous**
- **Adapted to:**
 - Well-drained, moist, fertile soils
 - Sunny or slightly shaded sites
- **Used throughout subarctic and temperate climates and high altitudes in subtropical and tropical climates**
- **Widely used for lawn and sports turf (except greens)**

Kentucky Bluegrass



Rough Bluegrass



- **Poa trivialis**
- **Fine-textured, delicate stoloniferous**
- **Adapted to damp or moist fertile soils on moderately shaded sites**
- **Not good for mixtures with other turfgrasses**
- **Usually occurs as a weed patch that is especially unsightly in summer when it thins and goes off-color**

Annual Bluegrass



- **Poa annua**
- **A winter annual or short-lived perennial that occurs as a volunteer species in intensively cultivated turf**
- **Not very stress tolerant but grow vigorously in cool periods and can become dominant in closely clipped golf and other turf**
- **Quite adapted to shady sites and tends to populate sites with compacted soils**

Annual Bluegrass



ANNUAL BLUEGRASS

Ryegrasses



- Annual and perennial types

Annual Ryegrass



- **Lolium multiflorum**
- **Bunch-type annual or short-lived perennial**
- **Sometimes used as a temporary lawngrass or as a nursegrass**
- **Because of its competitive, aggressiveness it is no longer recommended as a nursegrass**

Annual Ryegrass

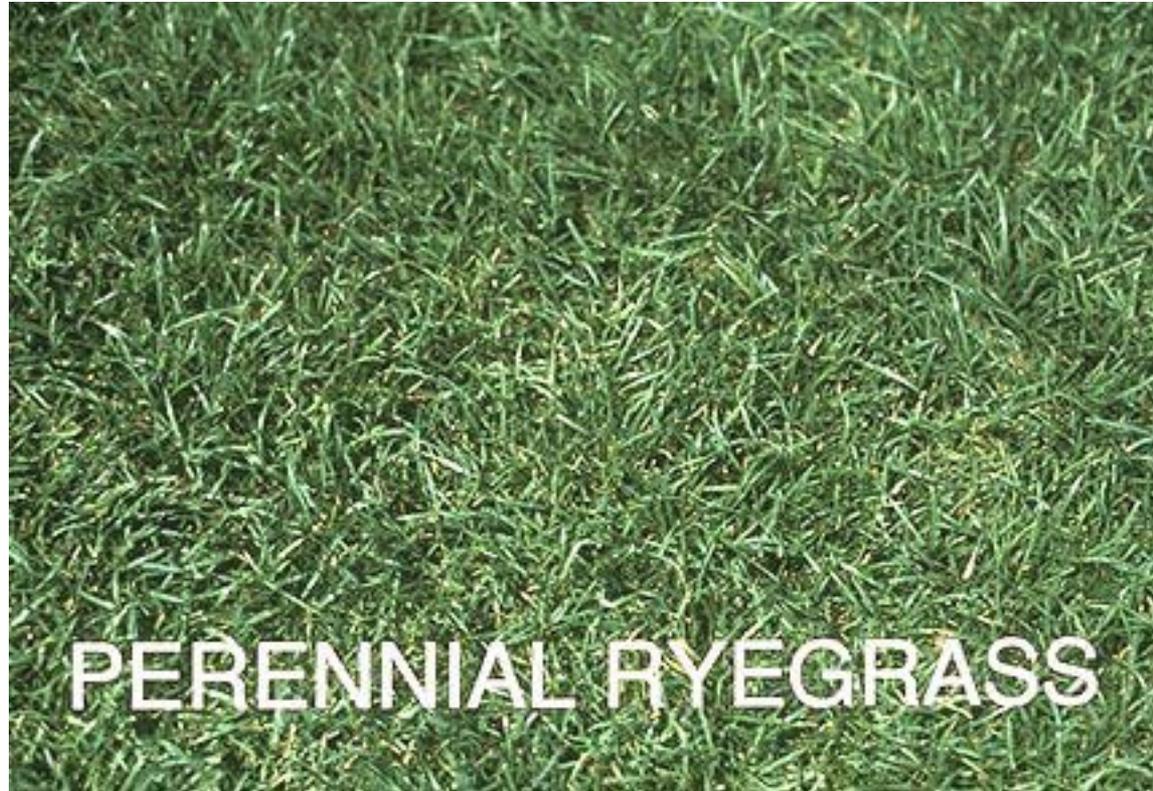


Perennial Ryegrass



- **Lolium perenne**
- **Bunch-type perennial adapted to moist, cool environments where severe climatic stress is not likely**
- **Frequently used in seed mixtures for athletic fields and other heavily trafficked sites**
- **Greatest current use is for overseeding warm-season turfs for winter play and color**

Perennial Ryegrass



Bentgrasses



- **Low-growing and fine textured**

Creeping Bentgrass



- *Agrostis palustris*
- Stoloniferous grass adapted to moist, fertile, acid to slightly acid soils
- Used for greens, closely mowed tees and fairways and exotic lawns
- Not compatible with Kentucky bluegrass and other lawn species (becomes invasive weed)

Creeping Bentgrass



Colonial Bentgrass



- **Agrostis capillaris**
- **Bunch-type to weakly rhizomatous grass adapted to temperate oceanic climates and well drained sandy, acid to slightly acid soils of moderate fertility**
- **A related species, dryland bentgrass (*Agrostis castellana* Boiss and Reut) represented by the cultivar Highland is also sometimes called colonial bentgrass**

Colonial Bentgrass



Bermudagrasses



- **Warm season turfgrass**

Common Bermudagrass



- **Cynodon dactylon**
- **Warm season species that spread by both stolons and rhizomes.**
- **Adapted to a wide range of soil conditions and sunny sites.**
- **Because it is intolerant to shade alternative warm-season grasses must be used in shady areas**
- **Used as general purpose turf in lawns, sports fields and roadsides**

Common Bermudagrass



BERMUDA GRASS

Hybrid Bermudagrass



- **Cynodon dactylon X transvaalensis**
- **Fine-textured grass**
- **Specifically developed for intensively cultured lawns and sports turf including greens**

Hybrid Bermudagrass



Zoysiagrasses



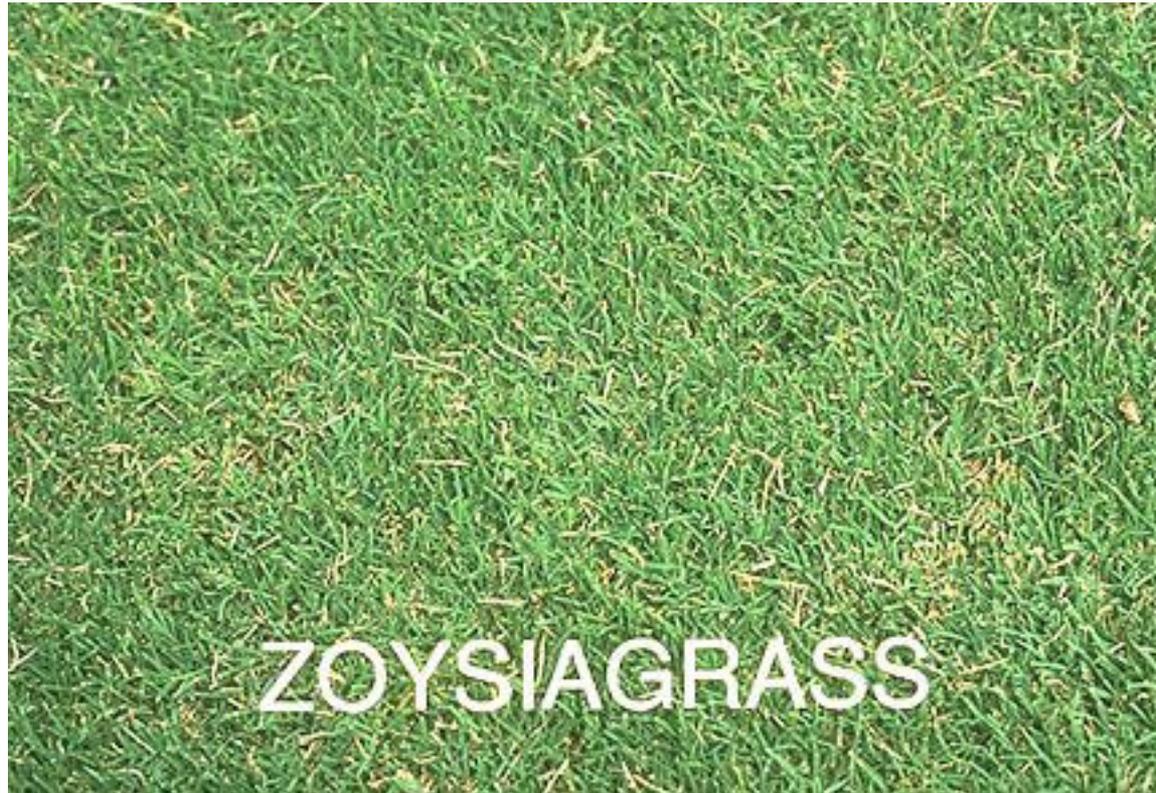
- **Warm-season**
- **Some are quite cold-tolerant but go off-color with first hard frost**

Japanese Lawngrass



- **Zoysia japonica**
- **Medium-textured warm-season grass**
- **Spreads by both stolons and rhizomes**
- **Adapted to a wide range of conditions but does best on well-drained, slightly acid soils of moderate fertility**
- **Although very stress tolerant it is slow to green up in spring and goes off-color early in fall**
- **Principal use is in the transition zone**

Zoysiagrass



ZOYSIAGRASS

Hybrid Zoysiagrass



- Zoysia japonica X tenuifolia
- Fine-textured grass
- Forms a very dense turf similar in appearance to hybrid bermudagrass
- Not as cold tolerant as Z. japonica
- Used in subtropical and tropical climates principally
- Emerald is the most popular variety

Emerald Zoysia

