Turfgrass Species

CLASSIFICATION OF TURFGRASSES, FAMILIES, GENERA, SPECIES, SEASON AND CLIMATE
Turfgrass Taxonomy

- Family- Poaceae (formerly Graminaceae)
- 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 60-75°F
- Environmental adaptation is limited mostly by heat and drought stresses
- Principal genera are bluegrasses, fescues, rye grasses and bent grasses
Eragrostoideae

- Eragrostoid grasses include the “warm-season” turfgrasses zoysia and bermudagrass
- While warm-season grasses have optimum growth at 80-95°F 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
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 >50F 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°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°F from 1 to 3 months per year
- Short cool summers and long cold winters and relatively low rainfall
Polar (F)

- Average temperature < 50°F 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
Ryegrasses

- Annual and perennial types
Annual Ryegrass

- Lolium multiflorum
- Bunch-type annual or short-lived perennial
- Sometimes used as a temporary lawnggrass 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
Hybrid Bermudagrass

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

- 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
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