Have you ever stopped to consider whether grass plants differ from one lawn to another or from one region of the country to another? If you are like most people, you probably haven’t. You might be surprised at the number of different species, varieties, and cultivars used in the turfgrass industry.

Objective:

- Explain how turfgrasses are selected and identified.

Key Terms:

- auricle
- Bahiagrass
- Bermudagrass
- centipedegrass
- collar
- cool semiarid region
- cool humid region
- cool-season turfgrasses
- creeping bentgrass
- crown
- fine fescues
- Kentucky bluegrass
- leaf blade
- leaf sheath
- ligule
- perennial ryegrass
- rhizomes
- Saint Augustine grass
- stolons
- tall fescue
- tillers
- transition zone
- turfgrass
- vernation
- warm arid and semiarid region
- warm humid region
- warm-season turfgrasses
- zoysiagrass

Turfgrass Plants

Turfgrass is a collection of grass plants that form a ground cover. All turfgrasses belong to the grass family Poaceae.
GROWTH CHARACTERISTICS

The types of grasses vary in appearance and growth habits. All are narrowleaf plants that have fibrous root systems. Flowers of most grasses are not showy. The stem of a grass plant is short, or compacted. This compacted stem is called a **crown**. New leaves grow from the crown.

**Growth Habits**

There are three types of growth habits or patterns by which a turfgrass spreads. They are stoloniferous, bunch-type, and rhizomatous.

Some grasses spread horizontally and produce new shoots called stolons. **Stolons** are stems that grow from the main plant above the ground. Bermudagrass, zoysiagrass, Saint Augustine grass, and centipedegrass are stolon-producing turfgrasses.

Some grasses, such as tall fescue and perennial ryegrass, grow in bunches and expand by tillers. **Tillers** are shoots that develop alongside the parent shoot. Tillers grow upward.

**Rhizomes** are stems that grow under the soil surface. Like stolons, they grow horizontally and produce new shoots. Kentucky bluegrass, Bermudagrass, and some fine fescues spread by rhizomes.

![Figure 1. Above-the-ground creeping stems are known as stolons.](image)
**Plant Structures**

Grasses are identified by the shape of the auricle, collar regions, leaf blade, leaf sheath, ligule, and vernation and by the shape of flower inflorescence. Other identifying characteristics include growth habit, general appearance, and seed head.

An **auricle** is a pair of tiny appendages between the leaf blade and the sheath. The **collar** is a light-colored band between the leaf blade and the sheath on the lower side of the leaf. The **leaf blade** is the upper portion of a grass leaf. The **leaf sheath** is the lower portion of a grass leaf. A **ligule** is a membranous or hairy structure on the inside of a leaf at the junction of the leaf blade and the sheath. **Vernation** is the arrangement of the youngest leaf in the bud shoot, either folded or rolled.

**CLIMATE**

Besides appearance, turfgrasses differ in the way they have adapted to climates. The environment plays a major role in selecting a turfgrass. Temperature and precipitation are key factors affecting the growth of a turfgrass on a site. Other environmental factors include exposure to the sun, type of soil, and humidity.

**Four Turfgrass Climate Regions**

The United States has been divided into four turfgrass climate regions. Each is based on the types of grasses that can be grown well within the particular region. Each region has certain environmental conditions that restrict growth of certain grasses.

The **warm humid region** is best suited to warm-season grasses, such as Bermudagrass, zoysiagrass, and Saint Augustine grass. The soil is generally strongly acidic and may be infertile due to low organic content.
The **warm arid and semiarid region** is best suited to warm-season grasses but only with irrigation. The soil is usually alkaline with low fertility.

The **cool humid region** is best suited to cool-season grasses, such as bluegrass, ryegrass, fescue, and bentgrass. The soil is generally acidic, and some irrigation may be needed to supplement the natural rainfall of the area.

The **cool semiarid region** is best suited to buffalograss and wheat grasses. The soil is generally acidic and will usually not support other grasses without adequate fertilization and irrigation.

**Transition Zone**

A **transition zone** is an area between two major climatic regions. A transition zone can have cold winters and hot summers. Those conditions make it difficult for most warm- and cool-season turfgrasses. Only the cold-tolerant warm-season turfgrasses and the heat-tolerant cool-season turfgrasses survive in a transition zone, but the climate isn’t optimal for either type.

Some grasses work fairly well in a transition zone. Bermudagrass and zoysiagrass are two warm-season lawn turfgrasses often used. The most cold-tolerant warm-season turfgrass is buffalograss. It does well in the northern regions of the transition zone in the states west of the Mississippi River, where humidity is low.

Tall fescue is the most common cool-season lawn turfgrass used in a transition zone. Kentucky bluegrass, perennial ryegrass, and fine fescues do well in a transition zone for two to
three years. They show decline after about three years. A lawn can then be overseeded to reno-
vate the turf.

**COOL-SEASON GRASSES**

**Cool-season turfgrasses** grow best in temperatures of 50° to 75°F (10° to 24°C). They
grow best during the cool temperatures of spring and fall. Cool-season turfgrasses withstand
cold winters in the northern part of the country. They may become dormant if allowed to dry
out during the summer. Some of the major cool-season turfgrasses are creeping bentgrass,
Kentucky bluegrass, fine fescues, perennial ryegrass, and tall fescue.

**Creeping bentgrass** (*Agrostis palustris*) is fine textured. It is used in situations that call for
close cutting, such as golf putting greens and fairways. It is not a good lawn turfgrass because it
requires high maintenance and has a high potential for disease problems.

**Kentucky bluegrass** (*Poa pratensis*) is a widely used, medium-textured grass. It prefers
moist, temperate climates. Mowing at a height of 2½ to 3½ inches is recommended.

**Fine fescues** (*Festuca rubra* and subspecies) are fine-textured, bunch-type turfgrasses.
They are the most shade tolerant cool-season turfgrasses. Mow fine fescues to a height of 1½
to 2½ inches.

**Perennial ryegrass** (*Lolium perenne*) is a medium-textured, bunch-type turfgrass. Mow at
a height of 1½ to 2½ inches. Perennial ryegrass is often used for winter overseeding in the
southern states.

**Tall fescue** (*Festuca arundinacea*) is a coarse-textured, bunch-type turfgrass. It is used in
cold, cool, or transition zones. Mowing height should never be lower than 3 inches. Tall fesc-
cue is the most drought tolerant cool-season turfgrass.

**WARM-SEASON GRASSES**

**Warm-season turfgrasses** grow best in temperatures of 70° to 95°F (21° to 35°C).
They grow best from late spring until fall. They go dormant when temperatures drop to 40°F
(4°C) or below. Warm-season turfgrasses tolerate hot summers
and drought conditions better
than cool-season grasses. They are
also more salt tolerant. However,
they do not tolerate shade. Some
of the major warm-season

turfgrasses are Bahiagrass,
Bermudagrass, centipedegrass,
Saint Augustine grass, and
zoysiagrass.
**Bahiagrass** (*Paspalum notatum*) is a coarse-textured grass used for lawns and as low-quality maintenance turf. It is adapted to mild coastal climates.

**Bermudagrass** (*Cynodon sp.*) is fine textured. It is a popular choice for home lawns and athletic fields. Mowing height, except for golf greens, is at ½ to 1½ inches. It is fairly cold tolerant.

**Centipedegrass** (*Eremochloa ophiuroides*) is a medium-textured grass adapted to a wide range of soil conditions. Recommended mowing height is at 1 to 2 inches.

**Saint Augustine grass** (*Stenotaphrum secundatum*) is a coarse-textured grass that spreads rapidly. It is mowed at a height of 2½ to 3½ inches. Saint Augustine grass is the most shade tolerant warm-season grass. It is also the most sensitive to cold temperatures.

**Zoysiagrass** (*Zoysia japonica*) is a medium-textured grass. It is fairly cold tolerant. The use of reel mowers is recommended to cut it at a height of ½ to 1 inch.

**Summary:**

Turfgrass is a collection of grass plants that form a ground cover. There are three types of growth habits by which turfgrass spreads: stoloniferous, bunch-type, and rhizomatous.

Grasses are identified by the shape of the auricle, collar regions, leaf blade, leaf sheath, ligule, and vernation and by the shape of flower inflorescence. Other identifying characteristics include growth habit, general appearance, and seed head.
Turfgrasses differ in the way they have adapted to climates. The United States has been divided into four turfgrass climate regions. They are warm humid, warm arid and semiarid, cool humid, and cool semiarid.

A transition zone is an area between two major climate regions. Only the cold-tolerant warm-season turfgrasses and heat-tolerant cool-season turfgrasses survive in a transition zone.

Grasses have been broadly categorized as cool-season or warm-season grasses. Major cool-season turfgrasses are creeping bentgrass, Kentucky bluegrass, fine fescues, perennial ryegrass, and tall fescue. Major warm-season turfgrasses are Bahiagrass, Bermudagrass, centipedegrass, Saint Augustine grass, and zoysiagrass.

**Checking Your Knowledge:**

1. What are three types of turfgrass growth habits?
2. What are the different parts of turfgrasses used for identification?
3. What are the four turfgrass climate regions?
4. What is a transition zone?
5. What are the major warm-season and cool-season turfgrasses?

**Expanding Your Knowledge:**

Determine in what type of turfgrass climate region you live. Is it one where cool-season, warm-season, or transition grasses are grown? Then, go to your yard or school yard and identify the turfgrass there.

**Web Links:**

- Choose and Identify Your Turf Species
  

- Turfgrass Program (University of Illinois)
  
  [http://www.turf.uiuc.edu/](http://www.turf.uiuc.edu/)

- Warm- and Cool-Season Grasses
  