

Teacher supplement:

<https://extension.uga.edu/publications/detail.html?number=B987-4&title=Native%20Plants%20for%20Georgia%20Part%20IV:%20Grasses%20and%20Sedges>

Few plants on Earth are more versatile or have a greater impact on the environment than grasses. They are major contributors to the total net photosynthesis and production of biomass in the world. They tame the erosive splash of raindrops, stabilize soil and assist the infiltration of water into the ground and aquifers. They interact ecologically with a diverse number of flora and fauna, both above and below ground, including insects, fungi, birds and mammals. Many insects, for example, rely on native grasses as a substrate on which they lay their eggs or as a larval food source in order to complete their life cycles. These same insects, in turn, are eaten by birds and mammals higher up the food chain. Many species of mammals, birds and insects also rely on grasses for shelter and nesting materials.

No other plant has played a more vital role in the development of civilization than grasses. For thousands of years, wild grasses have been cultivated and domesticated for human consumption and as feedstock for livestock and herds of wild animals. Most of the cultivated grains we use today, including wheat, barley, rye, oats, corn, rice, millet and sorghum, were developed from wild native grasses. Over the years, plant breeders and agronomists have made dramatic improvements in grain yields. One of the most notable was Norman Borlaug, an Iowa-born scientist and winner of the 1970 Nobel Peace Prize. He developed a high-yielding disease-resistant wheat that helped feed the world and saved millions of people in impoverished nations from starvation.

The grass family, Poaceae, is the fourth-largest plant family on Earth, with more than 10,000 species. Globally, grasses grow in all terrestrial habitats, including forests, glades, savannas, open deserts, prairies, wetlands, stream banks and floodplains. Yet grasses are relatively young plants in terms of their evolutionary history. The earliest evidence of fossilized grass pollen was found in South America and dates to the Paleocene Epoch, 55 to 65 million years ago. To put this in perspective, dinosaurs never ate grasses because grasses evolved after dinosaurs were extinct.

The southeastern United States is home to about 1,400 native grass species. Many of these species are managed for erosion control or wildlife habitats. Others have

been domesticated as pasture grasses and other types of animal forage, such as grain or baled hay. A few species, such as Muhly Grass, Switchgrass and River Oats, have become popular in the landscape trade.

This publication describes and illustrates 48 grasses and 10 sedges native to Georgia. It is not the intent of the authors to describe all native grasses and sedges, but those that are most widespread or those having practical application for wildlife habitats, erosion control, restoration projects or landscape culture. A few of the plants are noted as being weedy or invasive and may not be appropriate for use in cultivated landscapes. Nonetheless, they are included to assist the reader in identifying them because they are abundant in the wild.

This publication further separates grasses into two categories: warm-season grasses and cool-season grasses. Warm-season grasses begin growing when daily temperatures are between 60°F and 65°F. They grow in the summer, flower and fruit in the fall, and then go dormant after the first frost. Examples are Broomsedge, Bluestems and Indian Grasses. Cool-season grasses grow in the late fall, winter and early spring, flower and fruit in the late spring, then go dormant in the summer. Examples include Oatgrasses, Witchgrasses and Bluegrasses.

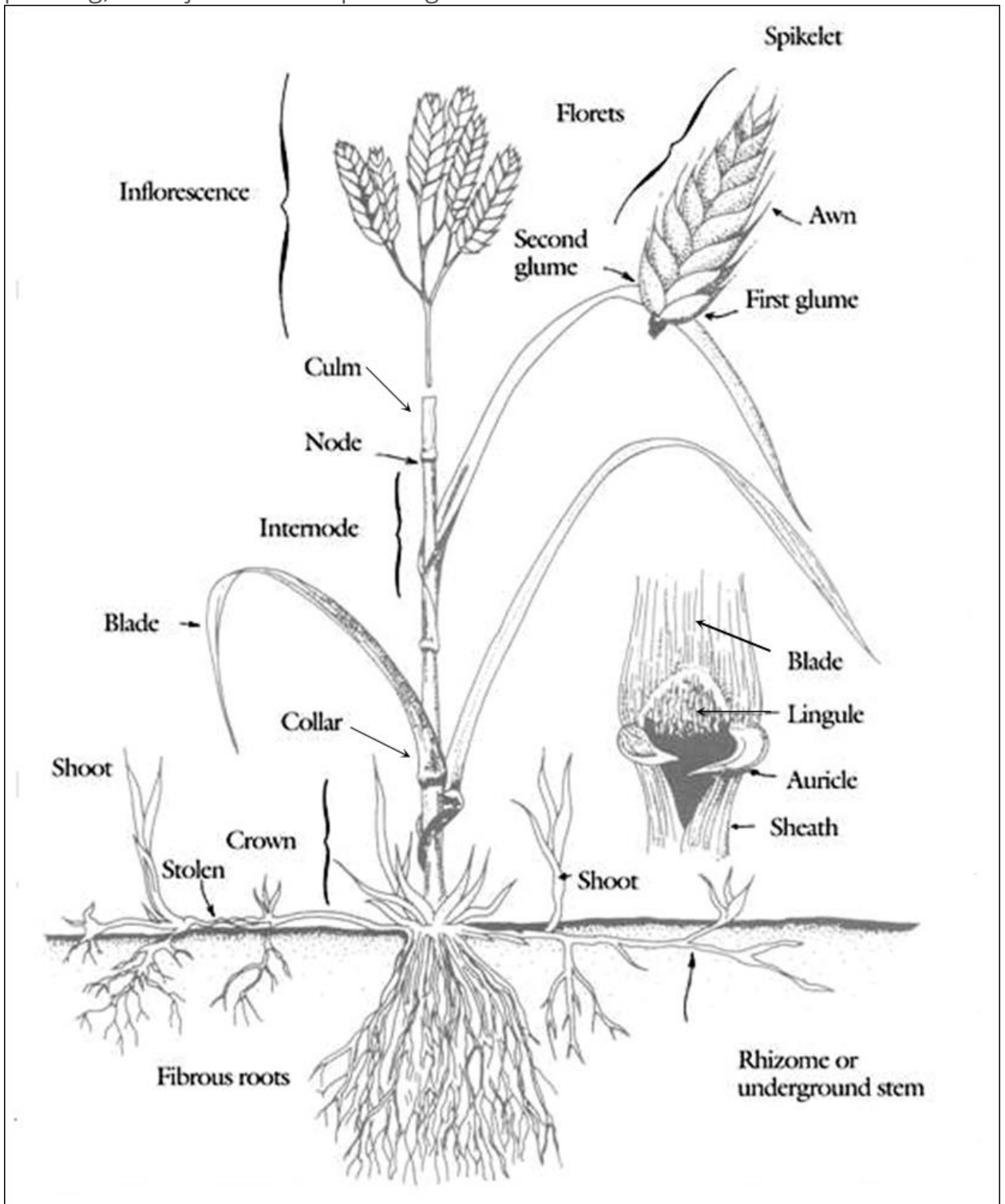
Grasses vs. Sedges

Grasses and sedges belong to two different plant families. They are sometimes difficult to tell apart, but they can be distinguished from one another by differences in their structures, habitats or life cycles.

- Grass stems are typically round or flat and hollow inside, while those of sedges are triangular and solid inside.
- Grasses have swollen nodes or joints along their stems, while sedges do not.
- Grasses produce both vegetative and floral stems, while sedges produce only floral stems.
- The leaves of grasses are usually two-ranked, which means they occur in two rows on opposite sides of the stems, while the leaves of sedges are three-ranked and occur in three vertical planes along the stems.
- The flowers of many grasses are showy, but those of many sedges tend to be inconspicuous.
- Grasses are most abundant in dry, open habitats, while sedges prefer moist to wet areas.

- Grasses can be either annuals or perennials, but sedges are primarily perennials.
- In natural environments, grass meadows are managed by grazing from wildlife or livestock, or they are burned back by wildfires or controlled burns. Occasional mowing to a height of 5 to 6 inches can substitute for grazing. Mowing from late May through June will scatter seeds and rejuvenate cool-season grasses, then mowing again in late winter will scatter seeds and rejuvenate warm-season grasses. To encourage forbs to seed in and multiply, rake off the residue after mowing. Raking scatters the seeds of forbs, helps seed-to-soil contact and allows light to reach the new plants. Otherwise, if the planting is well-balanced with grasses and forbs, leave the mowing residue in place to act as natural mulch.
- Controlled burning is an alternative to mowing in areas where outdoor burning is allowed. Check with your local division of the Georgia Forestry Commission for laws and regulations regarding controlled burns. Annual burning once the grass meadow is fully established (three to five years after

planting) will rejuvenate the planting.



Achene: A dry single-seeded fruit.

Awn: A bristle-like appendage on a floret or seed, often the extension of veins in glumes or lemmas.

Anther: The male floral part in which pollen is produced.

Blade: The broad, flattened portion of the leaf.

Bract: A modified leaf at the base of the ovary. It is also called a scale.

Bristles: Reduced or modified leaves with numerous hairs, usually in association with the ovary.

Callus: A thickened raised area of hardened tissue.

Collar: The outside area of a grass leaf where the blade and sheath join.

Crown: The basal portion of the plant just above ground level.

Culm: A hollow or pithy stalk or stem.

Filament: The stalk of the male portion of a flower to which the anther is attached.

First glume: The lower of the two glumes and just below the first floret. It is usually the smaller of the two glumes, or it may be entirely absent.

Floret: A unit within a grass spikelet usually comprised of a lemma, palea, two to three lodicules and the grass reproductive parts.

Glumes: The lower one or two sterile bracts at the base of a spikelet.

Inflorescence: A collective term used to describe the overall floral part of the plant.

Internode: The portion of the culm between two nodes.

Lemma: The lower of the two bracts enclosing a flower (floret) above the glumes. It is the most modified of the bracts and the last to disappear.

Ligule: A membranous structure on the adaxial leaf surface adjacent to the sheath.

Lodicules: Modified (reduced) perianth parts.

Nerve: The vein of a glume.

Node: The joint of a grass stem (culm) where the leaves and branches originate.

Ovary: Part of the flower that encloses the ovules containing seeds.

Palea: The inner of the two bracts, enclosed by the edges of the lemma.

Pedicel: The stalk of a single flower.

Pistil: The female floral part.

Rachilla: The secondary axis of a compound leaf or inflorescence.

Scale: Leaflike structure found at the base or outside of the flower. It is also called a bract.

Second glume: The glume opposite to the first, usually larger glume. When the first is lacking, the second glume is on the opposite side of the first floret.

Sheath: The lower part of a grass leaf that encloses the stem.

Shoot: The above-ground portion of a plant.

Spikelet: An inflorescence with one or two glumes at the base and containing one or more florets.

Stamen: The male part of a flower.

Stigma: The distal end of the style, which is receptive to pollen.

Style: Pollen tube connecting the stigma to the ovary.

Stolon: A horizontal above-ground stem that roots along its nodes. It is also called a runner.

Rhizome: A horizontal underground stem.