Annual/perennial grass types

The labeling of plants as annuals, biennials, or perennials goes back to the early Greeks.

**ANNUALS**

Plants with annual life cycles complete their growth cycle in a single growing season (which is not usually an entire year), and are perpetuated by seed. The major row crop plants of the world are annuals; corn, rice, wheat, and barley.

**BIENNIALS**

Biennials are plants that take two seasons or years to complete their growth cycle. The first year is a time for accumulating food reserves in storage organs. The second season produces reproductive flowers and seed. Some of the root crops, such as beets, carrots, and parsnips, some ornamental shrubs like hollyhock, and some vegetables like onions and cabbage are biennials. There are no common biennial grasses.

**PERENNIALS**

Perennials are plants that continue to grow indefinitely. Some may die back to the ground each winter (herbaceous perennials), but revive from the roots in the next spring. They propagate by tillers and seeds. Many of the forage grasses function in this way. Most perennial plants add new growth each year as trees do. Some species, especially tropical forms like the tomato, are perennials but are cultivated as annuals in certain climates. Some annuals can be managed to be short-term perennials.

This general understanding of plant classifications will help grass managers to understand the normal cycle of their grasses and help them make decisions on how to select forage species and maximze their production.

The following lists include the major annual and perennial grasses:

* **annuals:** annual ryegrass, annual bluegrass, pearl millet, corn, and sorghum/sudangrass
* **perennials:** orchardgrass, tall fescue, perennial ryegrass, kentucky bluegrass, smooth bromegrass, meadow foxtail, timothy, colonial bentgrass, bermudagrass, reed canarygrass, wheatgrasses, big bluestem, switchgrass, and indiangrass.

### Stages

Within a seed, when conditions are right to begin germination, specific cells within the germ tissue divide and expand, pushing the apical meristem contained in the seed out of the seed. A tube-like organ called the coleoptile protects the first leaf blade while pushing through the soil, eventually breaking through the crust of the soil. Then the first leaf unfurls.

A node (joint) at the base of the coleoptile is also pushed up towards the soil crust within a few centimeters of the soil surface by the elongation of an internode called the mesocotyl. The node that is pushed upward becomes the crown tissue from which roots and additional tillers arise.

Shortly after the coleoptile breaks through the soil crust, the first leaf unfurls. Additional leaves will quickly develop if conditions are right.

1. Seedling: the grass plant has just emerged from the soil as a monocotyledon (one leaf-type structure). Legumes emerge with two leaf-like structures. Grass leaves may whorl and erect a "false stem", but the true stem (culm) has not yet formed. Although relatively insensitive to management because the tissues involved in growth are nestled low and deep, enough leaf must be maintained to conduct photosynthesis for rapid growth, regrowth and root system development.
2. Vegetative: leaves continue to develop, emerge, unfurl, and die (senescence). The main function of the plant is photosynthesis. This stage of development yields the best livestock feed and managers should maintain this stage for as long as possible. However, climatic conditions will induce the next stage, sometimes called jointing, but it would more accurately be called internode elongation.
3. Jointing: the stage of grass development during which internodes commence elongation producing a true stem (culm). This elongation is preparation for seed development. The stem is producing a peduncle that will anchor the seedhead. The elongation elevates the growing point (shoot primordium including the rudimentary seed head) to a vulnerable height. Close grazing or low mowing at **early** jointing stage should be avoided because the elevated growing point could be removed and alternative (below-ground) regrowth mechanisms are not ready to function. However, removing the growing point in late jointing stage can be advantageous for some grasses because it stops the plant from spending so much energy on seedhead production so the plant redirects its energies to carbohydrate reserves.
4. Anthesis: the flowering stage during which the flowers open and shed their pollen. Grasses have perfect (sexually mature and fully differentiated) flowers and many are self pollinating. In this stage, the flowers are formed and the anthers are shedding pollen. The grass's work to produce the flower has resulted in decline of other functions, such as leaf production. The stem (culm) is more fibrous and plant palatability and digestibility declines. The grass plant is ready for harvesting seed at this stage (and before) but is not desirable for livestock feed.