

Turfgrass Maintenance Mowing

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Grasses are monocots and, as the name implies, have only one seed leaf or cotyledon. Additional leaves develop in a two-ranked arrangement, with each successive leaf attached at a 180-degree angle from the previous leaf. Less than 50 of the more than 10,000 individual species of grasses are classified



as turfgrasses. The turfgrasses usually become very compact and dense when routinely mowed. Unlike many trees that produce new growth from apical meristems at stem tips,

turfgrasses create new cells in locations well below the tip. Subapical meristems at the junction of the leaf blade and sheath, at the base of the leaf sheath and in buds on nodes near the soil surface enable turfgrasses to tolerate mowing.

What Height? Growth habit influences the recommended mowing height of turfgrass. Tillers develop from buds near the base of each plant.

Their aerial shoots grow upright and emerge inside the sheaths of existing leaves. Turfgrasses that primarily expand by tillering have a bunch-type growth habit.



Buds of some turfgrasses may produce stems that penetrate the sheaths as they grow laterally along the soil surface or turn and grow into the soil. These aboveground (stolons) or belowground (rhizomes) stems contribute to a creeping or sod-forming growth habit. Stolons and rhizomes have nodes that contain a bud capable of producing a new plant. In fact, pieces of stolons and rhizomes called sprigs are often used instead of seeds to establish new turf. Sod-forming turfgrasses such as bermudagrass, Kentucky bluegrass and *Zoysia* often recover from injury as lateral stems fill in the damaged areas. Turfgrasses with a sod-forming growth habit may tolerate a much lower mowing height and produce more thatch than those with a bunch-type growth habit.

The growth habit of several turfgrasses.

Turfgrass Species	Growth Habit (lateral growth)
Cool-Season	
Chewings fescue	Bunch (tillers); although the species has no rhizomes, it may eventually form a fine-textured sod
Hard fescue	Bunch (tillers)
Kentucky bluegrass	Creeping (rhizomes)
Red fescue	Creeping (rhizomes); aggressiveness of spreading varies among subspecies
Tall fescue	Bunch (tillers, short rhizomes); rhizomes of some improved, turf-type varieties may be more aggressive than others
Warm-Season	
Bermudagrass	Creeping (stolons, rhizomes); the rate of lateral growth of bermudagrass is often much more rapid than that of centipedegrass and <i>Zoysia</i>
Centipedegrass	Creeping (stolons)
St. Augustinegrass	Creeping (stolons)
<i>Zoysia</i>	Creeping (stolons, rhizomes); although their rate of lateral growth is much slower than that of most bermudagrasses, <i>Zoysia</i> may quickly produce thatch

Each turfgrass has a preferred or optimum mowing height range. During cool weather, tall fescue is often maintained at a height of 2 to 3 inches.



Increasing the mowing height to 2½ to 3½ inches before high-temperature stress may help insulate soils from extreme high temperatures. Similarly, increasing the height of cut of bermudagrass, centipedegrass, St. Augustinegrass

and *Zoysia* before the first autumn frost may help these warm-season turfgrasses survive extreme low temperatures during winter dormancy. Higher mowing heights within the preferred mowing height range for a particular species favor the development of strong roots and rhizomes. Turfgrasses experience more stress as the mowing height is lowered. The width of leaves narrows, the root growth rate is slowed and rhizome growth is often limited in closely mowed turfs.

The optimum mowing height range of several cool- and warm-season turfgrasses.

Turfgrass	Mowing Height (inches)	
Cool-Season	Climatic Conditions	
	Cool / Humid	Hot / Dry
Chewings fescue	1.0 to 2.0	1.5 to 3.0
Creeping bentgrass (greens)	0.125 +	≤ 0.25
Hard fescue	1.0 to 2.0	1.5 to 3.0
Kentucky bluegrass	1.5 to 2.25	2.25 to 3.0
Red fescue	1.0 to 2.0	1.5 to 3.0
Tall fescue	2.0 to 3.0	2.5 to 3.5
Warm-Season	Climatic Conditions	
	Warm / Moist	Cold / Dry
Bermudagrass, common	1 to 2	1.75 to 3
Bermudagrass, hybrid	0.75 to 1.5	1.25 to 2
Bermudagrass, hybrid (greens)	≤ 0.25	0.125 +
Centipedegrass	1 to 2	1.5 to 3
St. Augustinegrass	2 to 3	3 to 4
Zoysia	0.75 to 1.5	1.25 to 2

How Often? For healthy turf, practice the one-third rule. Instead of mowing according to a preset schedule each week, mow based on the actual height of plants. Remove no more than one-third of the leaves each time. Repeatedly scalping plants



back to their original height most often results in a weak and weedy turf. If the turf is excessively tall, gradually reduce the height of cut for several mowings until, once again, reaching the intended mowing height. Golf greens are often mowed once each day during the growing season and clippings are collected and removed.

What About Clippings? Actively growing turfgrasses and their clippings contain essential mineral nutrients and at least 70 percent water. Clippings dehydrate quickly and nutrients are recycled as they decompose. Mow frequently

when the turf is dry, to uniformly spread short grass clippings over the surface. This will reduce the possibility of an accumulation of too many large clippings that could contribute to a thatch problem. Today's mulching mowers are engineered to lift clippings and strike them several times before they are returned to the turf. If clippings are collected, consider adding them to the compost pile. Clippings usually contain 4 to 6 percent nitrogen on a dry weight basis. They help lower the carbon-to-nitrogen ratio of compost when mixed with certain landscape wastes (browns) including tree leaves, chipped tree limbs and shredded bark.

Why Change Mowing Direction? Turfs consistently mowed in the same direction may develop a condition known as 'grain.' Grain

appears as leaves become oriented in the same direction. Mower direction is most often changed daily on golf greens to limit the effect of grain on putting speed and ball roll. Varying the direction of mowing will reduce soil compaction and wear injury in mower wheel tracks. Many sports turf managers, golf course superintendents and homeowners take pride in the aesthetically pleasing patterns resulting from alternating the direction of mowing.



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