

Mowing Recommendations for Warm-Season Turfgrasses

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Mowing is perhaps the most common cultural practice performed in turfgrass systems. When performed properly, mowing is used to maintain a particular turfgrass height and appearance that supports the specific use and aesthetic expectations of that area. It is important to remember that while turfgrasses have evolved to tolerate mowing, this practice is still a stressor that has the potential to compromise overall turfgrass health and vigor.

Turfgrass may be subjected to a number of biotic (living) and abiotic (non-living) stresses throughout the year. Such stresses may include temperature extremes, drought, nutrient deficiencies, shade, traffic, and pests. Mowing practices—including height of cut and mowing frequency—can impact turfgrass response to each of these stresses. Therefore, it is important to take steps to adopt appropriate mowing practices that support the overall health of the turf and simultaneously optimize resource-use efficiency.

Height of Cut

Several factors determine the appropriate height of cut for any designated turfgrass area:

- The species and cultivar of turfgrass being managed
- The use or expectations for the area

- The management capabilities for the area including available equipment, time, and labor
- Prevalent stress including shade or drought

The recommended mowing heights for warm- and cool-season turfgrass species are outlined in Table 1.

When possible, it is generally recommended that turfgrasses be maintained at the higher height of cut for the given species and cultivar. Taller canopy growth generally corresponds to greater energy production which supports deeper and more vigorous rooting. Deeper root systems may result in improved water infiltration, nutrient and water-use efficiency, and improved overall turfgrass stress tolerance. In

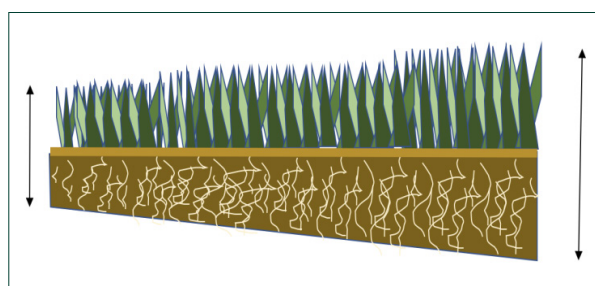


FIGURE 1. In general, a higher height of cut will support deeper, more vigorous rooting. This correlation between above- and below-ground growth is often referred to as the root-to-shoot ratio.

some species, a higher height of cut has also been found to reduce weed pressure, as taller grass is better able to out-compete encroaching weeds for resources such as light, water, and nutrients. Finally, a higher height of cut will require less frequent mowing based on the

1/3 Rule explained in the “Frequency” section of this document.

In some cases, it is not appropriate or feasible to maintain grasses at a higher height of cut. Taller grass may interfere with ball roll and foot traffic when used for athletic purposes. It

Table 1. Mowing height recommendations for warm-season turfgrass species according to intended use (Lawns & Public Spaces, Athletic Fields & Golf Course Fairways, and Golf Greens).

Warm-Season Turfgrass Species				
Recommended Height of Cut				
Common Name	Scientific Name	Lawns & Public Spaces	Athletic Fields & Golf Fairways*	Golf Greens*
Bermudagrass (Common)	<i>Cynodon dactylon</i>	1.5" to 3"	0.75" to 1"	NA
Bermudagrass (Hybrid)*	<i>Cynodon dactylon</i> (L.) Pers and <i>Cynodon dactylon</i> (L.) Pers × <i>Cynodon transvaalensis</i> Burt Davy	1" to 2.5"	0.5" to 1"	
Bermudagrass (Dwarf and Ultradwarf) *		NA	NA	<0.15"
Buffalograss	<i>Bouteloua dactyloides</i> (Nutt.) J.T. Columbus	2" to unmowed	NA	NA
Centipedegrass	<i>Eremochloa ophiuroides</i> (Munro) Hack.	1.5" to 2"	NA	NA
Seashore Paspalum	<i>Paspalum vaginatum</i> Sw.	1" to 2"	0.75" to 1"	<0.15"
St. Augustinegrass	<i>Stenotaphrum secundatum</i> (Walt.) Kuntze	2.5" to 4"	NA	NA
Zoysiagrass (Coarse-textured)	<i>Zoysia japonica</i>	1" to 2.5"	NA	NA
Zoysiagrass (Fine-textured)*	<i>Zoysia matrella</i>	1" to 2"	0.5" to 1"	<0.15"

*Best achieved with a reel mower rather than a rotary mower.
NA = Not Appropriate

Table 2. Mowing height recommendations for cool-season turfgrass species according to intended use (Lawns & Public Spaces, Athletic Fields & Golf Course Fairways, and Golf Greens)

Cool-Season Turfgrass Species				
Recommended Height of Cut				
Common Name	Scientific Name	Lawns & Public Spaces	Athletic Fields & Golf Fairways*	Golf Greens*
Annual and Perennial Ryegrass (overseed)	<i>Lolium multiflorum</i> L. & <i>Lolium perenne</i> L.	Determined by warm-season grass being overseeded		
Creeping Bentgrass*	<i>Agrostis stolonifera</i> L.	NA	<0.5"	<0.125"
Fine Fescue	<i>Festuca</i> sp. and ssp.	2.5" to unmowed	NA	NA
Kentucky Bluegrass and Hybrid Bluegrass	<i>Poa pratensis</i> L. and <i>Poa arachnifera</i> Torr. × <i>Poa pratensis</i> L.	2" to 3.5"	0.5" (Golf)	NA
Tall Fescue	<i>Schedonorus arundinaceus</i> (Schreb.) Dumort	2.5" to 4"	NA	NA

*Best achieved with a reel mower rather than a rotary mower.
NA = Not Appropriate

is also not typically recommended that turfgrass be maintained at heights that exceed the recommended range for a given species or cultivar. While some native grasses—such as buffalograss—are kept unmowed in naturalized areas, there can be negative consequences when turfgrass is not regularly maintained. Consequences include increased disease susceptibility and increased populations of undesirable pests such as fleas, ticks, fire ants, and some rodents.

Frequency

As a general rule of thumb, no more than 1/3 of the total turfgrass plant should be removed at any one time. For example, if your intended mowing height is 2", then you would need to mow before the plant has exceeded 3" in order not to 'scalp' the turf. Therefore, appropriate mowing frequency is determined by the rate of growth. Several factors including temperature, precipitation, light, and nutrient management will impact the rate of turfgrass growth throughout the year. Remember that supplemental nitrogen, though generally beneficial to turfgrass growth, will encourage faster growth that may not be appropriate for areas that will be mowed less frequently. Nitrogen applications should, therefore, be partially determined by management capabilities.

During peak periods of growth for warm-season grasses (summer), more fre-

quent mowing—sometimes two times per week—may be required to prevent turfgrass scalping. Scalping is the excessive removal of leafy green growth from turfgrass resulting in injury to the turfgrass. It is important to remember that plants require adequate green leaf tissue for photosynthesis and energy production. Excessive removal of leaf tissue through scalping can be detrimental to turfgrass health, as it limits the plant's ability to produce adequate energy to sustain growth. When turfgrass is mowed too infrequently, scalping is more likely to occur. When turfgrass has become unavoidably overgrown, consider gradually lowering the height of the turfgrass over time to prevent the removal of more than 1/3 total height in a single mowing. Turfgrasses that are maintained at a lower height of cut will require more frequent mowing to follow the 1/3 Rule.

Grass Clippings

It can be beneficial to mulch or recycle turfgrass clippings generated from mowing. Turfgrass clippings are usually between 2 and 4 percent nitrogen and—when recycled—can reduce the need for supplemental nitrogen fertilizers by up to half. Mulched or recycled clippings should be evenly dispersed across an area. Avoid allowing rows or piles of clippings to accumulate, as this can damage underlying turf by restricting sunlight and water. The physical movement of grass clippings into storm drains and adjacent water sources, particularly in large quantities, can also contribute to nutrient pollution of surface water. Therefore, avoid leaving clipping debris on streets and sidewalks. Instead, sweep or blow clippings back into the turf.

Before mulching clippings, there are several important considerations:

- When concerned with weeds, avoid mulching clippings that may contain weed seeds or other reproductive plant tissues (rhizomes and stolons) that could spread weeds across an area. Consider bagging and removing clippings during the reproductive growth stage of particularly nox-

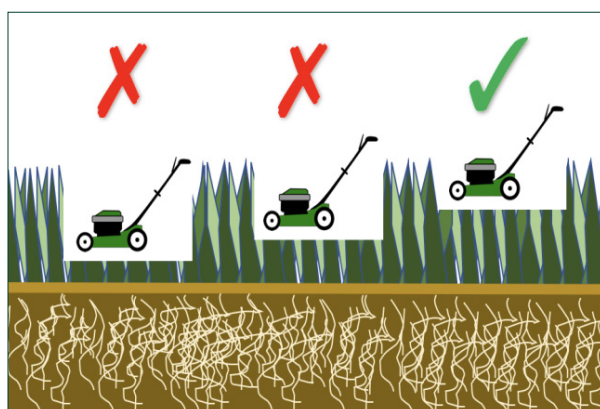


FIGURE 2. Mowing frequency should be based on following the "1/3 Rule" such that no more than 1/3 of the total above-ground green vegetation should be removed at any one time. This will help to prevent scalping that is stressful to turfgrass and can introduce pest problems including weeds.

ious weeds when flowers and seed heads are present.

- When concerned about diseases or insects, avoid mowing across known affected areas without taking steps to clean mower blades in-between. Consider bagging and removing clippings until the problem has resolved.
- Avoid mowing when grass is moist or damp, as this can sometimes increase the risk of spreading diseases and cause clippings to clump rather than disperse evenly.

Mower Maintenance

It is important to properly maintain any equipment that is being used to manage a turfgrass area. Dull mower blades will not cut grass properly and may cause injury by crushing, shredding, or leaving jagged, uneven cuts on turfgrass leaf blades. These injuries will increase turfgrass susceptibility to pests including diseases and insects and will ultimately compromise turfgrass response to other environmental stresses such as drought or heat. Most mower blades can be sharpened at home or professionally. Use caution when sharpening mower blades to avoid the risk of injury. Always turn off mowers and remove the spark plug prior to maintenance.



FIGURE 3. Proper mower maintenance is critical to maintaining healthy, viable turfgrass. Take time to keep mower blades cleaned and properly sharpened.

Dirty or contaminated mower blades can also increase the likelihood of the spreading of some turf diseases and may physically disperse turfgrass pests including diseases, insects, and weeds. When mowing multiple areas with different pest populations, take steps to adequately clean equipment to prevent contamination across sites. The use of a hose, scrub brush, and dish soap can be beneficial in cleaning mower blades. The objective should be to remove any grass clippings or outdoor debris from the blades and surrounding crevices on the mower deck. When possible, take steps to ensure that the blades dry properly before the lawn mower is returned to storage.

In some cases, it has been recommended to use a light coating of cooking spray or other light oil on mower blades to reduce accumulation of debris on the blades and facilitate easier cleaning.

Other Considerations

Time of Day

It is not always possible to mow at a particular time of day. However, when possible, avoid mowing when the grass is damp from dew or irrigation. This will help prevent the spread of diseases and allow for better clipping distribution when turfgrass clippings are mulched. Additionally, use caution when mowing during peak summer hours when temperatures are especially hot. Turfgrass may be more susceptible to wilt and foot traffic during this period of the day, and mowing may exacerbate the situation.

Shade

Turf that is grown in shaded areas beneath trees or adjacent to buildings can benefit from different cultural practices than turf that is maintained in full sun. To increase leaf surface area available for photosynthesis, consider maintaining shaded turf at the highest recommended height of cut for the species.

To maintain optimum health in shaded conditions, you might consider reducing overall nitrogen fertilization relative to full sun

areas, as shaded areas will generally require fewer inputs and nitrogen tends to stimulate even greater rates of shoot growth, necessitating mowing. While tree roots can sometimes result in greater irrigation requirements during certain times of the year, reducing irrigation frequency in shade can also be beneficial in terms of minimizing leaf wetness, a key factor in disease development in shade.

Winter Weed Control

It is unnecessary to mow warm-season grasses during winter months when the grass is dormant and not growing. However, regular mowing when winter annual and perennial weeds are active can be effective at regulating weed growth. Likewise, timely removal of flowers and seedheads can minimize the spread

of weeds across an area. Clippings, particularly those that contain reproductive tissues (e.g., weed seed heads, stolons, and rhizomes) should be collected, bagged, and physically removed from the area to prevent the spread of weeds.

Soil Compaction Prevention

Mowing equipment, particularly larger riding mowers, are extremely heavy and may contribute to soil compaction over time. Compacted soil will compromise root growth and development, affecting turfgrass health. To reduce the risk of mower compaction, avoid mowing after heavy rainfall or irrigation events when soils are wet and particularly susceptible to compaction. Mow when excess water has drained, and conditions are better able to support heavy equipment.

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