

# MOWING RECOMMENDATIONS FOR WARM-SEASON TURFGRASS LAWNS

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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/or 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) or abiotic (non-living) stressors throughout the year. Such stressors 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

The appropriate height of cut for any designated turfgrass area is determined by several factors:

- ▶ The species and cultivar of turfgrass being managed
- ▶ The use and/or expectations for the area
- ▶ The management capabilities for the area, including available equipment, time, and labor
- ▶ Mower type (reel vs. rotary)
- ▶ Prevalent stress, including shade or drought

The recommended mowing heights for warm-season turfgrass lawn 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 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 generally 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 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. Higher mowing heights can cause some species (e.g., fine-textured zoysiagrass, seashore paspalum) to shade themselves out, reducing health and growth. Excessive grass height can also lead to increased disease susceptibility and increased populations of undesirable pests such as fleas, ticks, fire ants, and some rodents. Finding the right height of cut for your lawn area may require a willingness to monitor and adjust based on how a particular species/cultivar is responding to your particular environment. In many cases, a height should be as tall as possible while still allowing turfgrass leaves to stay relatively upright and open to allow for air and light movement.

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## REEL VS. ROTARY MOWERS

Mowers can be categorized a number of ways (e.g., riding, push, automatic, electric, gas-powered). However, one important distinction is whether your mower is a reel or a rotary mower. Rotary mowers are more commonly used to maintain home lawns and similar environments. In general, rotary mowers are ideal for maintaining larger areas and are typically easier to maintain (e.g., sharpen) and adjust for different heights of cut. However, the “machete-like” cut of the rotary mower tends to make it more suitable for areas maintained at 1.5 inches or higher. Using a rotary mower to mow shorter turfgrass (less than 1.5 inches) can often result in turfgrass injury or scalping, particularly if an area is not especially flat and/or uniform. The third column in Table 1 provides recommended height ranges for warm-season turfgrass species when a rotary mower is being used.

In general, **reel mowers** will offer a **sharper, “scissor-like” cut**. This makes them more appropriate for areas with a lower height of cut (1.5 inches or less). It also makes them more appropriate for areas that have an uneven surface that may otherwise prevent smooth movement. Reel mowers will generally allow for the greatest quality of mowing but are often more difficult to maintain and more difficult to adjust (i.e., height of cut). As a result, they are not always the friendliest option for home lawn use, and often have to be used at a greater frequency—sometimes three times per week—than a rotary mower depending on the height of cut and species selected. Because reel mowers can allow for a lower height of cut, an additional column has been added to Table 1 that reflects a minimum recommended height when a reel mower is used. It should be noted that just because a lower height can be used does not mean it should be used. Lower-mowed turfgrass will generally require more frequent mowing and greater overall inputs (e.g., irrigation, fertilization, pesticides) than turfgrass that is maintained at a slightly higher height. As a result, it is generally not recommended that home lawns and similar environments are maintained at these heights unnecessarily. Rather, lower heights should generally be reserved for athletic fields or similar environments that require shorter grass to support a particular use.

## FREQUENCY

As a general rule of thumb, no more than 1/3 of above-ground green tissue should be removed at any one time. For example, if your intended mowing height is 2 inches, then you would need to mow before the plant has exceeded 3 inches 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 frequent mowing—sometimes twice 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 in order 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 to 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/or 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 noxious 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 between areas. Consider bagging and removing clippings until the problem has been resolved.
- ▶ Avoid mowing when the 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 or 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.

Dirty or contaminated mower blades can also increase the likelihood of spreading certain turf diseases or 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, a light coating of cooking spray or other light oil on mower blades has been recommended to reduce the 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.

### Time of year

#### Spring

In the spring, turfgrasses tend to have a more prostrate growth habit and can be mowed shorter.

#### Summer

In the summer, turfgrasses tend to have a more upright growth habit and should be mowed higher to compensate for this growth habit. Increasing the mowing height during the warmer months will likely lead to healthier turfgrass that can withstand greater environmental stressors that may be present at this time.

#### Fall

In the fall, turfgrasses are often preparing to enter dormancy as temperatures decrease. It is recommended to raise your mowing height in order for turfgrasses to store maximum energy as they prepare for winter dormancy.

### 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

containing 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.

Table 1. Mowing height recommendations for warm-season turfgrass species in a lawn scenario

| Warm-season turfgrass species        |                                                                                                                   | Recommended height of cut |                                 |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------|
| Common name                          | Scientific name                                                                                                   | Rotary mower              | Minimum height with reel mower* |
| <b>Bermudagrass (Common)</b>         | <i>Cynodon dactylon</i>                                                                                           | 1.5" to 4"                | 0.75"                           |
| <b>Bermudagrass (Hybrid)</b>         | <i>Cynodon dactylon</i> (L.) Pers and <i>Cynodon dactylon</i> (L.) Pers x <i>Cynodon transvaalensis</i> Burt Davy | 1.5" to 2.5"              | 0.75"                           |
| <b>Buffalograss</b>                  | <i>Bouteloua dactyloides</i> (Nutt.) J.T. Columbus                                                                | 2" to unmowed             | 2"                              |
| <b>Centipedegrass</b>                | <i>Eremochloa ophiuroides</i> (Munro) Hack.                                                                       | 1.5" to 2"                | 1"                              |
| <b>Seashore Paspalum</b>             | <i>Paspalum vaginatum</i> Sw.                                                                                     | 1.5" to 2"                | 0.75"                           |
| <b>St. Augustinegrass</b>            | <i>Stenotaphrum secundatum</i> (Walt.) Kuntze                                                                     | 2.5" to 5"                | 2.5"                            |
| <b>Zoysiagrass (Coarse-textured)</b> | <i>Zoysia japonica</i>                                                                                            | 1.5" to 4"                | 1"                              |
| <b>Zoysiagrass (Fine-textured)</b>   | <i>Zoysia matrella</i>                                                                                            | 1.5" to 2"                | 0.75"                           |

\*Reel mowers will allow for a lower height of cut (HOC) than a rotary mower. In some cases, it may be desirable to maintain a shorter mowing height (<1.5 inches) when a reel mower is available, depending on desired aesthetics and functionality of a particular site. However, it should be noted that when using a reel mower to maintain a lower height of cut, more frequent mowing—sometimes three times per week—is often required.