

Mowing BMPs

Mowing is the most basic and most important cultural practice to consider when developing a management plan. Mowing practices at a facility will affect turfgrass density, texture, color, root development, and wear tolerance.

Regulations

Policies regulating yard waste vary from state to state and each state has differences in what they define as yard waste. Check your state's regulations and local ordinances about grass clippings in land-fill sites.

Clippings may also present a problem if the grass had a pesticide applied and that pesticide was not broken down by normal composting. Product labels may specify that grass clippings should not be placed in a compost pile, so read the label. This would be a federal regulation since it is on the label and regulated by EPA.



Photo courtesy of Doug Linde, Ph.D.

Mowing Height

Standard mowing heights vary depending on grass species/cultivar, sport, and the amount of maintenance the turfgrass receives. Other factors that influence mowing height include mowing frequency, shade, equipment, time of year, root growth, and abiotic and biotic stresses.

- Mow at a height that is optimal for healthy turfgrass. (See height of cut chart.) The intended use and growth habit, leaf texture and potential tiller density of different species and cultivars dictates the range of heights at which turfgrass can be mowed.
- Remove no more than 1/3 of the leaf area in a single mowing (see table below). If turfgrass becomes too tall due to wet conditions, scheduling, or out of service equipment, it should not be mowed to the desired height all at once. Removing more than 1/3 of the leaf blade in a single mowing reduces density, root growth, and puts undue stress on the grass. Mow tall grass frequently at gradually decreasing heights until desired height of cut is achieved.
- Mow shaded turfgrasses at least 30% higher to improve their ability to capture light, meet photosynthetic needs and improve carbohydrate availability.
- Increase mowing heights during prolonged cloudy weather or drought to increase photosynthetic capacity and rooting depth.
- Vary mowing height seasonally to improve responses such as spring green-up, summer stress tolerance, and cold hardening. However, selecting a single height at the most suitable height year-round will provide competition against weeds and maintain tolerances against heat, drought and cold.

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Recommended Mowing Heights

Type of Grass	Lowest Height	Highest Height
Kentucky bluegrass	1.5 inches	3 inches
Perennial ryegrass	1.5 inches	3 inches
Tall fescue	1.5 inches	3 inches
Bermudagrass	¼ inch	2 inches
Creeping bentgrass (tennis, lawn bowling, croquet)	1/8 inch	¼ inch
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Taken from *Sports Fields: A Manual for Design, Construction and Maintenance*

Guidelines for one-third cut of turfgrasses

To cut one-third of the leaves		
Height of cut	Mow when turfgrass reaches	Growth between mowings
1 inch	1.5 inches	0.5 inches
1.5 inches	3 inches	1 inch
2 inches	3.75 inches	1.25 inches
2.5 inches	4.5 inches	1.5 inches
3 inches	5.25 inches	1.75 inches

Taken from *Sports Fields: A Manual for Design, Construction and Maintenance*

Mowing Frequency

Frequent mowing increases shoot density and tillering. It will also decrease root and rhizome growth because of plant stress associated with the removal of leaf tissue. Infrequent mowing typically results in alternating cycles of vegetative growth followed by scalping, which depletes food reserves in the plant.

Leaf growth in response to N availability and environmental conditions dictates mowing frequency.

- Decrease mowing frequency during dry, stressful weather conditions. Turfgrass stressed by excessive heat, cold, moisture, drought, traffic, or damage from cultural practices should be mowed at a reduced interval, or not mowed at all to aid recovery.
- Increase mowing frequency during periods of rapid growth.
- Cool-season grasses need more frequent mowing in the spring and fall.
- Warm-season grasses require more frequent mowing in the summer.
- Mow frequently so as not to remove more than 1/3 of the leaf blade in a single mowing. Repeated removal of greater than 40% leaf area initially stops energy from being stored in the roots and eventually stops root growth, reducing overall root viability. Coupled with summer stress, excessive mowing often results in shoot thinning, weed invasion, and sometimes, death.
- The lower turfgrass is maintained, the more frequent the need to be cut to protect healthy growth and not break the 1/3 rule.

Mowing Practices/Direction

Mowing patterns influence both the aesthetic and functional characteristics of a turfgrass surface.

- Change the mowing pattern each time the turfgrass is mowed. Grass develops a grain based on cutting direction, tending to lean towards the direction you mow. Excessive lateral growth can also occur if the turfgrass is only mowed in one direction. Alternating the pattern promotes upright growth and improves quality of cut.
- Adjust mowing patterns to minimize turning equipment on shaded turfgrass areas.
- When possible, direct foot and vehicular traffic away from shaded areas.

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- Walk the site during wet conditions to do a visual inspection and avoid unnecessary vehicular and equipment traffic on wet grass. Driving on wet grass may cause long-term damage, such as wheel ruts and soil compaction, which can impact turfgrass health and recovery.
- Dispose of clippings properly by composting or dispersing them evenly in natural areas where they can decompose naturally without accumulating in piles.
- Mulching blades are an excellent choice when returning clippings to the turfgrass canopy. Mulching blades work best when mowing frequency is increased. They do not work well on over grown grass.
- Check local ordinances for restrictions pertaining to disposal of clippings in a public compost site.

Grass Clippings



Excessive Grass Clippings - Photo courtesy of Doug Linde, Ph.D.

- Mowing frequency determines how well clippings can filter back into the turfgrass canopy and decompose. Frequent mowing yields smaller clippings.
- Whenever possible, grass clippings should be returned to the grass canopy. Recycling clippings into the turfgrass system provides up to 1 lb N per 1000 square feet per year. Other nutrients such as P and K are also recycled into the turfgrass, reducing the need for supplemental nutrients.
- Ensure that grass clippings do not have the potential to be washed into streams or drainage systems. Remove clippings from driveways, sidewalks and street gutters by simply blowing them back into the grass canopy. Clippings can be a source of pollution due to the presence of nitrogen, phosphorus, potassium and other nutrients.
- Remove clippings if they will have a detrimental impact on play. This includes times when the quantity of clippings is so large that it could smother the underlying grass, or where it could affect ball roll.

Equipment

Reel, rotary, and flail mowers are available to maintain turfgrass at an acceptable height of cut.



Adjustment of a Reel Mower - Photo courtesy of Doug Linde, Ph.D.

- Follow the manufacturer's guidelines on routine maintenance and proper operating procedures.
- Conduct routine maintenance such as lubrication, oil changes, blade sharpening, tune-ups, belt adjustments, and daily cleaning to extend equipment life and lower operating costs.
- Inspect all sites to be mowed and remove any debris that may be lying about.
- Maintain constant awareness of pedestrians, vehicles and personal property in the mowing areas. Be aware of clipping discharge.

Mowing BMPs

- Use proper mowing equipment that has sharp blades and is properly adjusted to deliver acceptable cutting quality. Dull blades result in shredding of leaf tissue, which can turn leaf tips brown, increase water loss and increase potential for disease development.
- Use a mower that is appropriate for the height of cut. Rotary mowers can go as low as $\frac{3}{4}$ inch. Reel mowers set above 1-inch start to lose quality of cut.
- Use flail mowers for utility turf areas that are mowed infrequently and do not have high aesthetic requirement.
- Store equipment properly to minimize exposure to weather, prevent accidents, and maintain security.