



## Best Management Practices for New York State Golf Courses

### Mowing to Maintain Turfgrass Density

Turfgrass runoff research consistently concludes that maintaining high shoot density turf is the most effective means of reducing runoff volume. The tortuous path travelled by rainfall or irrigation water increases as the number of shoots per unit area increases. In addition to the reduced runoff, the fibrous root system of turf has been shown to increase infiltration. The longer the water deposited on the turf surface is delayed from runoff, the more likely that proper infiltration will occur. The combination of reduced runoff volume and increased infiltration is a primary aspect of water quality protection, thus maintaining a dense turf is vital. In addition, denser turf also provides a better playing surface.

A turf is defined as low growing vegetation maintained under regular mowing and traffic. Conversely, areas not regularly mowed are not considered turf. Mowing is a significant selection tool and one that, when done properly, has a profound influence on turf density. A properly mowed turf maintains a high shoot density that limits surface water movement. A properly mowed turf sustains an adequate underground biomass to retain additional water and nutrients that infiltrate.

#### *Mowing Height*

Mowing practices require decisions regarding type of mower, height, frequency, and clipping management. Individually and collectively these practices, when performed properly, maximize turf density.

Height of cut is often determined by the function of the site, with additional emphasis on visual quality. A close cut turf is often viewed as more aesthetically pleasing. However, lower heights of cut, especially at turf heights below 1.5 inches, require more maintenance to maintain turf density.



**Proper mowing adjustment, especially reel mowers, ensures maximum turf performance while minimizing stress that leads to reductions in turf density. *Source:* Frank Rossi.**

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Mowing height significantly affects rooting depth because the lower the turf is mowed, the shorter the root system, and therefore the greater concentration of surface rooting. Additionally, the lower height of cut requires more frequent mowing as leaf extension accelerates when turf is cut lower and tissue must be removed more frequently.

Ultimately, every turfgrass species has an ideal mowing height range and a mowing range that the species can tolerate. Maintaining turf within the ideal range maximizes density. As long as mowing heights remain within the tolerance range, however, adequate density is possible when other maintenance factors such as water and nutrients are provided in the optimal range.

## *Mowing Frequency*

The turf growth rate and height of cut dictate mowing frequency. As mentioned previously, the lower the cut, the more frequently mowing is required. In general, increasing mowing frequency increases turf density.

Little evidence supports the accepted rule that no more than 30% of the leaf tissue should be removed in a single mow. Instead, significant evidence indicates that some turf species such as tall and fine fescue and perennial ryegrass can have between 50 and 75% of the tissue removed before any turf thinning occurs. Ultimately increasing mowing frequency positively effects turf density, but will increase the energy consumption of the maintenance program.

## *Mower Selection*

Mower selection is based on the expected height of cut. Mowing heights at or below 1.5 inches are typically best achieved with a reel-type mower. Reel mowers allow for rapid clipping of turfgrass tissue at practical operating speeds with minimal turf damage (when properly adjusted). Mowing heights above 1.5 inches are best achieved with rotary impact mowers, also when blades are sharpened and properly balanced.

Any mistake in mower set up from blade sharpness to bedknife alignment can lead to increased stress from wounding and reduction in turf density. Therefore, the mower must be properly adjusted and set up to minimize leaf shredding and wounding for pathogens. Reel and rotary mower blades are shown on the next page.

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Reel mowers are ideal for golf turf mowed under 1" height of cut. *Source: Frank Rossi.*



Rotary mowers are best used for height of cuts above 1". Blades should be sharpened after every 10 hours of use. *Source: Frank Rossi.*