

RUTGERS CORNER -

EVALUATING YOUR SPORTS TURF MOWING PROGRAM

Dr. James A. Murphy*

Mowing Height

Turfgrass species and variety, mowing frequency, environmental conditions, and available management resources are factors that govern the lowest mowing height possible for a turf. Tall fescue is best mowed at height of 2 inches or more. At lower heights, tall fescue will steadily thin out and become infested with weeds. Perennial ryegrass can be mowed as low as ½ inch under intensive management including routine mowing, irrigation and pesticides; however, mowing heights of 2- to 3-inches are necessary under less intensive management. Certain varieties of Kentucky bluegrass can tolerate mowing as low as ¾ inch; however, annual bluegrass will eventually invade and dominate under such low mowing. A 1.5- to 2.5 inch mowing height is more acceptable for Kentucky bluegrass grown under moderate levels of management.

The budget and labor constraints placed on the field managers at many school and municipal operations typically do not allow mowing heights lower than 2 to 2 ½ inches for a majority of fields. In some cases, more intensive mowing management is feasible on limited basis for high priority playing fields.

Mowing towards the lower end of a species tolerance range will stimulate shoot growth, increase tillering/shoot density, and encourage a finer leaf texture, and ultimately improve playing surface conditions. Mowing below the height tolerated by a species will increase leaf succulence, decrease wear tolerance, reduce carbohydrate (food) reserves, and decrease root, stolon, and rhizome growth.

Mowing Frequency

Increasing the mowing frequency without lowering the mowing height is one immediate adjustment in a mowing program that can quickly improve turf and playing surface quality. Mowing more often so that less than 1/3rd the length of the leaves is removed will be less stressful to the turf than lowering the mowing height to achieve better playing surface quality. More frequent mowing results in less leaf tissue being removed in a single mowing and allows the turf to better adapt to the height of cut compared to a less frequent mowing program.

The proper minimum mowing frequency is determined by the 1/3rd rule, which refers to the concept that no more than 1/3rd of the height of the leaves (turf canopy) is cut in a single mowing. For example, a turf mowed at 2 inches should be no more than 3 inches high when it is mowed (1 inch is cut off the 3 inch high turf, 1/3rd). Turf should be mowed at 2.5 inches when the leaves are 3¾ inches high. And when the turf reaches 4½ inches it should be mowed no lower than a 3-inch height.

A lower mowing height requires more frequent mowing because shoot growth of the turf plants is stimulated as the mowing height is lowered. Thus, more frequent mowing is needed to keep up with the greater shoot growth and avoid scalping of the turf. Some examples of minimum mowing frequencies include mowing three to four times per week at 1½ inches or less, two times per week at 2 inches, and once a week at 3 inches. Infrequent mowing at low heights will scalp the turf and result in long-term decline of turf and playing surface quality.

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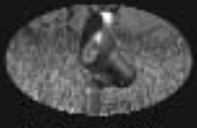
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Spring Mowing Strategies

As spring temperatures become more favorable for growth, winter dormancy in turf begins to break and green-up develops as new shoots emerge. Rapid shoot growth and minimal environmental stresses at this time of year can lull turf managers into a false sense of security that problems will be minimal. In reality, it is a critical time to use a proper mowing frequency and cutting height along with no more than modest levels of nitrogen fertilization to develop and maintain a good root system.

Peak shoot growth will occur at air temperatures of 60 to 75 °F during the spring and the roots are extending deeper into the soil profile. The carbohydrate supply in the plant is depleted rapidly during this period of peak growth, thus timely mowing is critical to avoid removing no more than 1/3rd of the leaf tissue, otherwise a further strain the carbohydrate supply of the turfgrass plants would result. This negative physiological response to excessive defoliation (scalping) will cause root growth to cease and possibly dieback. Furthermore, recovery from scalping in the spring will be slower than a turf manager might expect due to the low carbohydrate supply. And turf with low vigor and density in the spring will be readily invaded by weeds such as crabgrass and goosegrass.

An unfortunate scenario that can occur in the spring involves wet (rainy) weather that interrupts the mowing schedule. Shoot growth becomes excessive and it is difficult to maintain the turf at the desired height. Under these circumstances, it is best to return to desired mowing height in a series of mowings, decreasing the cutting height with each successive mowing. For example, if conditions result in a 5 inch turf height and the desired mowing height is 2 inches, the next mowing should be at 3.5 inches followed by a mowing at 2.5 inches and finally mowing at the desired 2 inches. If feasible, it is also helpful to increase the mowing frequency during this time that the mowing height is being reduced.

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