Improper mowing exacerbates this problem. If the correct mowing frequency is followed, then the turf does not go through a period of shock from the immediate loss of top growth and can recover quicker. Infrequent mowing results in alternating cycles of elevated crowns followed by scalping, resulting in a further depletion of food reserves.

Mowing height

Mowing heights for golf course turf is governed by the grass being used and the use of that grass. For example, golf greens are mowed at or below 1/4 inch to provide a smooth, fast and consistent playing surface that golfers desire. In contrast, golf course roughs are mowed between 2 and 3 inches to penalize a player for hitting into them. Other factors that influence mowing height include mowing frequency, surrounding shade, mowing equipment, time of year, root growth and stress.

Mowing height refers to height of topgrowth immediately after the grass is cut. Determining this height can be misleading to inexperienced mower operators. Often height is adjusted and checked on a level surface such as a workers bench or roadway and is referred to as 'bench setting'. However, when operated, mower wheels are forced down on grass shoots resulting in the unit riding on top of them and the mower is actually raised higher than the bench setting. Conversely, when a mower is operated on soft ground or when a thick, spongy thatch layer is present, the mower cuts lower than the bench setting, often resulting in undesirable scalping. Recommended mowing heights for each grass species and use are listed in Table 1.

Many factors influence the mowing height of grasses. Shoot tissue is the site of photosynthesis and any removal of this strongly influences the physiological and developmental condition of the turfgrass plant. If grass is mowed too low or too infrequently, crown damage can occur and excessive shoot tissue is removed. This reduces the green plant tissue left, reducing the plant's ability to carry on photosynthesis, and results in scalped, off-colored turf (Fig. 2). Plants mowed too low require a substantial amount of time for roots to provide food needed for shoot tissue production for future photosynthesis. Turfgrasses have a ratio of shoot to root tissue that is optimum to support growing grass. If turf is mowed too low at one time, this results in an imbalanced ratio with more roots available to support top growth than the plant physiologically requires. This excessive root mass is then sloughed off. Until the plant has time to regenerate new shoot tissue, the plant will become weak and more susceptible to environmental stresses.

There is also a direct relationship between mowing height and rooting depth. As the mowing height is reduced, a corresponding reduction in rooting depth occurs (Fig. 3). This ties back into the physiological aspect of less rooting is needed to

Table 1. Recommended mowing heights for turfgrass species and their use.

Species	Use	Mowing height (inches)
Tifgreen and Tidwarf bermudagrass	Golf greens, baseball infields, bowling alleys, tennis courts, etc.	3/16* to 1/2
Tifway and Tifway II bermudagrass	Golf Tees; Fairways, baseball outfields, and athletic fields	1/2 to 1.0 5/8 to 1 1/2
Ormond and Tifton 57 bermudagrass	Fairways and athletic fields	3/4 to 1.0
Common bermudagrass	Fairways, baseball outfields, and athletic fields; Golf course roughs	1.0 to 1 1/2 2 to 3
Bahiagrass St. Augustinegrass	Golf course roughs and out-of-play areas	2 to 3

*Mowing heights below 3/16 inch are recommended only during tournament play and only for Tidwarf bermudagrass.