



## Turfgrass Series

### Why turf needs to be mowed? Is it just for looks?

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Sound mowing is perhaps the single most important factor contributing to the attractiveness and longevity of any turfgrass area. Cutting leaves off at a uniform height produces smooth turf with an attractive appearance. Cutting through stems (stolons, rhizomes, and tillers) causes the turf-grass plants to generate more stems, which grow roots of their own to produce more individual plants, and therefore maintains or increases turf density. Before modern times grass was mowed by grazing animals, mostly sheep, which provided a rather rough quality of cut. Today, modern mowers provide a high-quality cut and can be adjusted with great precision, often to within 1/32 inch of the desired mowing height.



Early mower used around 1900.

Among the major benefits that result from frequent mowing are improvements of turfgrass appearance and preservation of the plants' health. Properly mowed turf is frequently denser, more resistant to invasion by weeds, and more resistant to traffic damage, diseases, pests, and numerous other stresses.

Mowing is always stressful for turfgrasses. Cutting leaf tissue disrupts physiological processes and creates open wounds in the tissue through which unwanted pathogens or other organisms can enter the plant. Removal of leaf area reduces the plant's ca-

capacity to carry out photosynthesis and consequently lowers production of carbohydrates. This results in decreased production of new roots, which in turn results in decreased abilities to draw water and nutrients from the soil. All these negative factors would seem to indicate that grasses should be mowed as infrequently as possible, and that conclusion is correct for over 10,000 species of wild and forage grasses around the world, but the 40-50 species of the so-called turfgrasses are different. They have the unique ability to compensate for the loss of leaf tissue to mowing by increasing their density below the mowing height. For these species and varieties mowing is still somewhat stressful, but it is not damaging if constant mowing height is maintained. The proper mowing height and frequency are those that provide the optimal balance between desired appearance of the turf and the physiological abilities of turf-grasses to withstand mowing stress. Much scientific research has been conducted to determine this balance not only for each of turfgrass species but also for each turfgrass variety and major cultivars.

Even occasional mowing below the point where stems branch is tremendously stressful, so removing only a modest portion of the leaves and keeping consistent mowing height is crucial. The next part of turfgrass series will discuss the importance of maintaining correct and consistent mowing height.

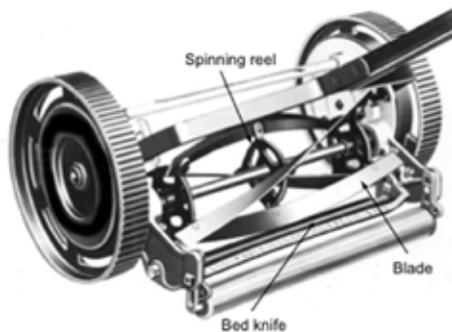
#### Mowers- which one should you choose?

Two basic types of mowers are available for mowing residential turfs: reel mowers and rotary mowers. The proper choice of mowing equipment depends on the type of grass and the conditions of usage and maintenance. Sharp, properly adjusted reel mowers are recommended for cutting high-quality turfs. They provide a clean, even cut, and leave the turf

looking the most attractive. On residential lawns reel mowers would be preferred for mowing zoysia grass but are seldom used because of cost, laborious maintenance and easy rusting. Rotary mowers should be used where perfect appearance is not necessary and where ease of operation, maintenance, and price are of significant concern. Home lawns are predominantly mowed with rotary mowers powered by gas engines. They are usually efficient, strong, and the most reliable.

### Reel mowers

A reel mower consists of a horizontal rotating cylinder, the reel, with attached blades and stationary bed knife, which is parallel to the ground (Figure 1). The reel spins around its long axis, and the scissoring action of its blades against the bed knife cuts the grass leaves. High sharpness of the bed knife and spinning blades is of critical importance; therefore, they are not popular among home-owners.



**Figure 1.** The spinning reel sweeps across the bed knife and cuts the grass leaves like scissors.

### Rotary mowers

The blade of a rotary mower is usually a single sharpened metal bar suspended parallel to the ground at its center point. It spins in a horizontal plane, striking and severing vertically growing leaf blades. Rotary mowers do not provide an even cut, and they cause a certain amount of mutilation to the leaf blade at the point of impact. For the majority of turf-grasses rotary mowers provide a satisfactory cut, but some turf-grasses with rigid leaves, such as zoysia, may sustain considerable damage to the leaf tips, espe-

cially when the blade is not quite sharp. In general, rotary mowers are designed to mow grass taller than 1 inch, so their operation is restricted to medium- and low-quality turfs, and their primary users are home-owners. Rotary mowers, usually powered by small engines, can cut a wide variety of grasses, require little maintenance, and need only periodical sharpening (Figure 2). The spinning blade creates air movement under the mower housing that may blow clippings to the side, into a bag, or back into the turf. In recent years, the last-type, called mulching mowers, have become very popular and recommended on Guam.



**Figure 2.** The blade of a rotary mower spins in a horizontal plane, striking and severing vertically growing leaf blades.

Under frequent, normal mowing, clippings should be left on the surface if possible. They are a source of easy-to-decompose organic matter and contribute to development of humus in the soil. If clippings form clumps, they should be lightly raked.

Electric mowers are getting more popular. They are fairly effective, especially when a battery with enough power to cut a lawn on a single charge replaces the inconvenient electrical cord. Electric rotary mowers are often in “flail” version in which the metal blade is replaced by several nylon strings rotating in the same manner. Nylon strings usually spin faster that is beneficial when cutting fine zoysia grass. Some people mastered the skill of mowing zoysia grass with a bush-cutter and achieve decent results. However, in most cases the damage is severe and bush-cutters should never be recommended as replacement for mowers.

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