

# LANDSCAPE MANAGEMENT

## Do you know the mowing basics?

The turf type, the mower, the operator: all play vital roles in maintaining healthy grass.

■ "Mowing is the primary cultural practice in turfgrass management," observes Dr. Beth Baikan of Cornell University. And as such, it should be the number one consideration of turfgrass managers who want a healthy, attractive stand of turf.

She defines mowing as: "removal of photosynthetically active tissue that temporarily reduces the food-making process and weakens the plant."

In one sentence: if you're not mowing correctly, chances are that you're creating more problems for yourself.

Mowing height, Baikan says, is determined by:

- turfgrass species;
- intensity of maintenance; and
- how the turf is being used.

"All species have a mowing tolerance range," she says. Bermudagrass should be mowed at 0.2-0.5 inches; St. Augustine, carpetgrass, centipedegrass at 1.5-2 inches; turf-type tall fescue and bahiagrass at 2-3 inches.

"The shorter the grass is mowed, the more frequently it needs to be mowed," Baikan further observes. "You can compromise mowing height and frequency on less highly-maintained turf, but not on intensely-maintained turf like golf greens."

Also, grasses which grow in shade typically lack vigor; its leaves are weaker than grasses growing in sunlight. So mowing heights should be raised 30-50 percent of the normal recommended height.

**Other factors**—"Selection of equipment is critical," she says.

"And adjustment of blades is also important."

She suggests adjusting the mower blades before every mowing.

Rotary blades cut in a horizontal mode, reel blades in a circular mode. Rotary blades use a suction-effect to stand the grass up straight and then rip the tip of the plant off in a scythe-like manner. Reel blades, on the other hand, use a cleaner, more efficient scissors-type action with the blade slicing off the turfgrass tips against the bedknife.

"Season, time and temperature also play an important role in mowing practices," Baikan notes.

In cool, wet periods, you should use a higher cut to promote deep rooting. When it's hot and dry, a shorter cut means less water evapotranspiration loss. "You have to see where the line is," she says.

**Problems**—Common problems which arise from improper mowing practices include:

- 1) At lower heights, the plant is stressed more, meaning more opportunity for weed encroachment.
- 2) Dull blades will rip the plant, causing injury.
- 3) When the mower is travelling at an excessive forward speed, the turf tends to show a wavy appearance.

4) Mower bounce on unlevel ground contributes to an inconsistent cut.

5) An improperly-set deck could result in scalping, which is removing an excessive amount of leaf tissue. Baikan and other turf experts recommend setting the deck so that not more than 1/3 of the leaf tissue is removed. "Scalped grass is more susceptible to pests and turf," she says.

6) Mowing stressed grass just places more stress on the plants, resulting in a bevy of problems.

7) Mowing frosted grass removes needed moisture from the plant's access.

8) Improperly maintained mowing equipment contributes to turf damage by leaking gas, oil and hydraulic fluids.

9) An excessive accumulation of clippings results in an unhealthy appearance when it dries up. She suggests collecting clippings when they show an excessive accumulation, or mowing more frequently.

10) Continually mowing in the same direction causes formation of a "grain." "You can create a pattern of beauty just by cutting in different directions," she says.

—Jerry Roche

## ATHLETIC FIELD MOWING HEIGHTS

### USE

### In-season

### Off-season

Bowling, cricket

1/4"-1/3"

1/4"-1/3"

Field hockey

3/4"-1 1/2"

2"-2 1/2"

Baseball outfield

1"-1 1/2"

2"-2 1/2"

Soccer

1"-1 1/2"

2"-2 1/2"

Rugby, lacrosse

1 1/2"-2"

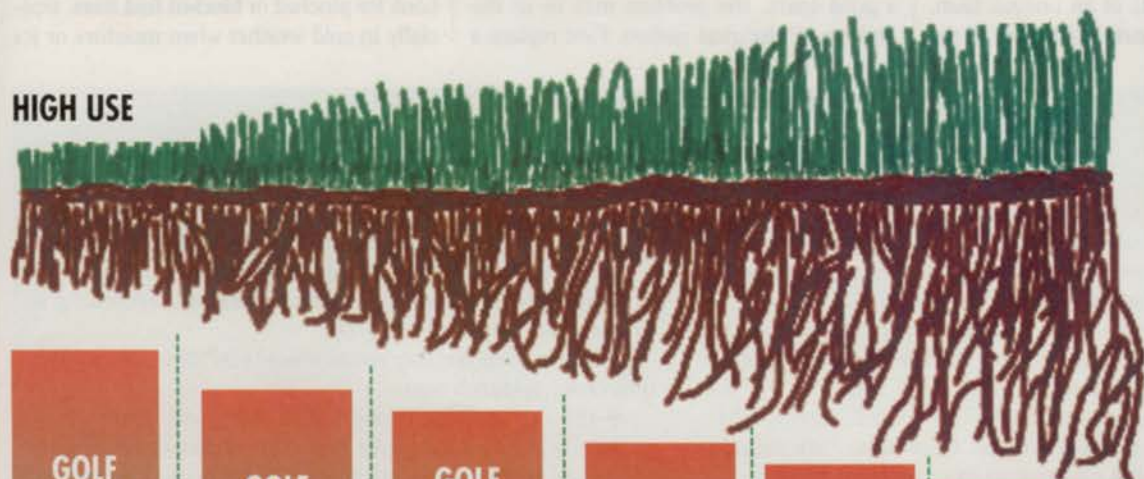
2 1/2"-3"

Source: Beth Baikan

## CULTURAL INTENSITY

LOW USE

HIGH USE



**GOLF GREENS**  
short,  
smooth  
true rolls

**GOLF TEES**  
minimize  
grass  
interference

**GOLF FAIRWAYS**  
longer for  
playability,  
bounce and  
good lies

**ATHLETIC FIELDS**  
midcut for  
footing and  
safety

**HOME LAWN:**  
midcut for  
beauty

**UTILITY TURF:**  
longer heights  
for infrequent  
mowing, avoids  
scalping



Beth Baikan:  
tip number one is  
mow at the proper  
height.



# Troubleshooting mower engines

Here are some typical mowing problems, and how you can solve them.

by Robert L. Tracinski

■ While most landscape managers probably don't think of themselves as mechanics, even the best in the business are only as good as their equipment.

By learning to recognize and correct routine mower problems quickly and efficiently, you can devote more time to the productive work.

Here are some common problems and how to get to their roots, with the key points in boldface type.

**Striping, unevenness**—Uneven cutting, skipped areas or poor performance indicates a problem with the mower deck or cutting blade.

**Wet grass** may be more prone to uneven cutting than drier turf. If possible, wait until the grass is dry before cutting. It's also possible that you're trying to do the job too fast. A **slower ground speed** may solve the problem. Also, cutting too much grass at one time often results in an uneven lawn. Try taking **less of a cut**— $1\frac{1}{2}$  inches at the

most. If the grass you're cutting is exceptionally fine, it might help to go to a **lower lift blade**.

If the problem is in the mower, you most likely have a **dull blade**. Keep the blade sharp; corners should not be rounded.

Keep the underside of the **mowing deck clean**, and inspect it to make sure that it isn't **warped or distorted**. Make sure you don't have a **bent or damaged toe guard** at the discharge chute.

If you're using a belt drive model, be sure that the **belt is properly tensioned** and that the **idler moves freely**.

**Engine won't start**—A variety of factors, from weather changes to worn parts, can contribute to hard starting.

Determine whether you're **getting a spark**. Using insulated metal pliers, remove the spark plug and touch the threaded area of the plug to a metal surface on the engine. Turn over the engine and look for a blue spark.

**Electrical problems**—If you don't have a good spark, the problem may be in the ignition or electrical system. First **replace a**

**worn or corroded spark plug**.

Next, check the **battery's electrolyte levels**, add water if necessary, and **clean the terminals**. Have the battery tested if you're still having problems.

Sometimes a problem elsewhere in the system may cause the battery to run down. Among the possibilities:

- accessories are left on after the vehicle is turned off, draining the battery;
- the vehicle has been idle for three months or more, during which time the battery has deteriorated;
- battery cables or connections are heavily corroded, leading to voltage seepage.

**Fuel problems**—Be sure you're using fresh fuel with an **alcohol content of less than 10 percent**, and the **right blend** for the season. Summer-grade fuel can be less volatile in winter, while winter blends can cause vapor lock in warmer weather.

Another culprit may be the fuel system. Check fuel flow: **pulse lines should be connected** and the **fuel vent open and clear**. Look for pinched or **blocked fuel lines**, especially in cold weather when moisture or ice

## Mulching: does it work?

■ Mark Prinster of TruGreen/ChemLawn believes that there will be a nationwide restriction on disposing of lawn debris in sanitary landfills by the mid-1990s.

Mulching grass clippings, he believes, could be a partial answer to the problem of disposal for landscape managers. But only a partial solution.

"Do mulching mowers work?" he asked, during the Georgia Turfgrass Conference last December. "We found, yes and no, depending on the type of grass."

The newer mowers with a mulching feature work well on common bermudagrass and tall fescue, but "on hybrid bermuda, the differences are not great enough to warrant use of a mulching mower," Prinster believes.

Mulching mowers were developed by Bolens in the 1960s, Prinster notes. They feature a dome-shaped deck, a special cutting blade and a powerful (4 to 5 hp) engine. The advantages of using mulching mowers:

- You return the clippings to the environment.
- You eliminate composting and dumping.
- You reduce mowing time by 38 percent, according to TruGreen/ChemLawn research.
- You reduce fertility requirements by 25 to 30 percent, university research says.
- You can mulch autumn leaves along with grass.

According to university research, grass clippings are composed of 4% nitrogen, 0.5% phosphorus, 2% potassium, 75-85% water and 20-30% protein. According to a study at Washington State University, mulched lawns were healthier than non-mulched lawns (see chart on page 14).

"The agronomic benefits of mulching are real," said Prinster. "The mulching mowers work, but they're not foolproof. We have to watch weeds because if you mulch you're returning the weed source to the turf."

— Jerry Roche

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## Some manufacturers have established a 'hot line' service to get an answer in one call.

can form; keep the tank full in winter to prevent moisture condensation.

**Fuel deterioration**—Make sure the carburetor is clean, and compare the adjustments on your carburetor to the settings recommended in the operator's manual.

If you routinely store your mower for the winter or extended periods of time, **fuel can deteriorate**, turn to varnish and cause engine difficulty or damage. Before storing a vehicle for more than three months (less in warmer environments), it's best to remove all fuel from the system. If you must store a vehicle with fuel and without adding stabilizer, **replace the fuel and filter and remove and clean the carburetor** before use.

**Oil consumption**—If blue smoke blows from the exhaust during mowing, the engine is consuming too much oil.

If you suspect this, use the following checklist to identify the specific problem:

- **oil level** is too high: drain off the excess and keep an eye on it;
- **oil weight**: review the operator's manual for recommended weights;
- **oil foaming**: do not operate the engine above recommended speeds;
- **overheating**: refer to operator's manual for instructions on cleaning the cooling fins.

**Hydrostatic transmission**—If you have slow response from a hydrostatic transmission, steering difficulty or a slow deck lift speed, check the **oil level** according to the procedure outlined in the operator's manual. Check for moisture in the oil. Change the **oil filter** if you have problems with contamination, or if it has not been changed in the past season; if a **hydraulic filter is plugged** with debris, it will restrict oil flow. Fill the filter with the proper oil before installing it in the mower.

**Help wanted**—What if, despite your best efforts, you can't seem to locate or correct a mower problem? The next step may be to go to your dealer for help. Some manufacturers have established a "hotline" service which allows a dealer to call the manufacturer, describe a problem and get an answer in one phone call. In any case, your dealer should be able to help.

—Robert L. Tracinski is consumer information manager at Deere & Co., Raleigh, N.C.

## TURFGRASS QUALITY

Ratings 1-9 with 9.0 being best

	<u>Color</u>	<u>Quality</u>	<u>Density</u>
Mulched	7.4	6.3	7.3
Bagged	7.1	5.7	6.8

Source: Braun and Stahnke, Wash. St. Univ.