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Why reel grinding matters

By Steven Nixon

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Everybody knows a sharp blade makes a cleaner cut. Much to our frustration, we have all used a blunt knife, scissor or razor blade at one time or another and know how it hacks and tears at whatever we're cutting.

When it comes to turf maintenance, surgically-sharp mowers slice through grass blades, severing them cleanly and with minimal damage. Because the grass left in the mower's wake is the same height and uniform in appearance, overall turf definition is improved and the playing surface more smooth, healthy and consistent.

Financial benefits are derived from reduced expenditures on fertilizer, fungicide, chemicals and fuel (for mowing equipment), as well as increased revenues due in part to greater end user satisfaction with the turf.

The grinding process is crucial to maintaining the sharpest blades and, therefore, optimal turf conditions. To help you understand how it works, let's look at the two components of the cutting unit: the bedknife and the reel.

THE BEDKNIFE

The bedknife is the most important part of any cutting unit. Although it looks simple, it is actually a very complex piece of steel. The bedknife gathers the grass and holds it in position until the reel blade comes around to cut it.

Grinding the top and front faces of a bedknife helps to maintain sharpness. As its name suggests, the "top face" sits on top of the bedknife. It is a negative angle, meaning it slopes away from the unit's point of cut. This allows grass to be directed away from grass coming into the mower. The requisite degree of angle varies depending on the height and condition of the turf being mowed.

Once this angle wears down, the grass isn't ejected properly so the point of cut gets clogged. This prevents incoming grass from being cut cleanly.

The other angle is known as the "front face" angle. If the bedknife is the most important part of the mower, then the front face is the most important part of the bedknife, making good care of it especially critical.

The front face needs to be flat and even. If the face becomes worn or rounded, which it will over time because turf (and especially topdressing) is very abrasive, then grass will not be presented evenly to the cutting blades of the reel. Keeping the front face in tip-top condition is crucial to optimal turf health.

THE REEL

Often overlooked are reasons one should also spin grind the reel. Yes, it is to make each blade sharp, but it is also to ensure the reel is cylindrical and even. There is no point in sharpening all the blades if only every third one cuts because they are not of equal height.

Naturally, a reel that is maintained regularly is going to be easier and quicker to grind than one sharpened only once a year. Sharpening of the bedknife and reel is integral to maximizing their effectiveness and, in turn, turf conditioning.

A dull cutting unit (bedknife and reel) will tear at grass, leaving it uneven. These ripped and ragged blades bleed and lose plant moisture and nutrients. The open tips also leave them more vulnerable to disease from spores such as Fusarium and other leaf-spot afflictions. Repairing and regenerating the plants then requires a greater demand for food and fertilizer, driving up costs and impacting budgets.

Agronomically speaking, a reduction in the use of water, fertilizer, fungicide and topdressing is a benefit. Not only is use of these expensive consumables decreased, but also costs associated with handling of the materials, generating electricity to pump water, etc. Mechanically, trials at several training colleges have demonstrated fuel consumption reductions.

Going a step further, one can translate fuel reduction into increased mower life, reduced engine wear, fewer replacement parts—and it soon becomes clear that the benefits are very attractive to your facility's bottom line. Another added bonus? Less fuel use means a smaller carbon footprint.