Do we value the importance of cutting unit adjustment as much as we should? Or put another way: as greenkeepers, how much of our time is dedicated to the cutting units?

I want to examine just a few of the many variables that need to be considered when talking about precision engineering like modern cutting units and achieving the single, greatest impact on how a golf course looks and plays.

The weather appeared so predictable, with four seasons, warm summers and cold winters. Heights of cut were more predictable, one height in the summer, one in winter and never the twain should meet. Whatever your views on climate change, weather patterns are changing, which means we in turn need to adapt to our ever-changing environment.

Another big change is raised greens. Heights of cut were more predictable, which alter from machine to machine, location to location, day to day and so on. We therefore need to be able to understand and react to these variables.

Although mower technology has moved on dramatically over the past 100 years, the principles of a cylinder contacting a bedknife remains the same since Edwin Beard Budding produced the first mower. Those very same principles still rely on a sharp, well-maintained and correctly adjusted unit.

It’s also important to consider that poor maintenance and incorrect set-up may impact on a number of other turf operations we carry out to maintain the playing surface.

In some cases poorly set up and maintained cutting units may lead to damage to the turf. This in turn will mean the turf becomes susceptible to disease.

The result is a need for additional chemical application, fertiliser, Scarifying, coring and top dressing, all of which comes at an additional cost in time and materials. As well as good unit and machine maintenance, it is also important to remember turf conditions. Moving equipment cannot remedy a turf problem.

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Ian Sumpter, Toro’s European Training Manager, explores setting up a mower and asks: how crucial is cutting unit adjustment? He puts forward the view that mower set-up and maintenance has the single, greatest impact on how a golf course looks and plays.
Cutting edge

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Another big change is raised expectations – from everybody! In the Seventies, by mid season, football pitches even in the top flight clubs would feature bare mud in high traffic areas, something totally unacceptable today. Now we see training academies with multiple pitches that are manicured to the highest standards – an example of how demands are high on groundsman and greenkeepers alike.

So how do we meet these expectations? Do we value the importance in cutting unit adjustment to help us achieve these expectations?

It is my belief consistent and proper mower set-up and maintenance has the single, greatest impact on how a golf course looks and plays.

We work with so many variables, which alter from machine to machine, location to location, day to day and so on. We therefore need to be able to understand and react to these variables.

Although mower technology has moved on dramatically over the past 100 years, the principles of a cylinder contacting a bedknife remain the same since Edwin Beard Budding produced the first mower. These very same principles still rely on a sharp, well-maintained and correctly adjusted unit.

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**CHECKLIST**

* Grease all grease points being careful not to over grease and wipe away excess grease.
* Finally check height of cut is the same on all units.
* On the Toro RM5010 Series units check the RM5010 Series adds or subtracts 2.3kg to the units.
* Check lift arm counterbalance spring setting to increase or decrease counterbalance on the cutting unit. Each setting on the RM5010 Series adds or subtracts 2.3kg to the units.
* Check for wear limits of the reel by measuring from the spine to the outside of the reel. Manufacturers will list wear diameters and recommended replacement diameter.
* Ensure units are sharp with no visible damage to the bedknife or cylinder.
* Check the unit is on cut, Toro recommends light contact, pinch paper one way cut paper the other. Do not be tempted to tighten the bedknife or reel adjustment at the slightest hint of a poor cut. Tightening the bedknife or reel adjustment at the slightest hint of poor cut is a standard error and will not solve the issue and could lead to further problems.
* Ensure any unit compensation spring and that they are set correctly. If working with Toro fairway units, tighten the hex nuts on the front of the spring rod until the compressed length of the spring is 2.7 cm on Reelmaster 5410. 5 inch cutting units or 15.9 cm on Reelmaster 5510 & 5610, 7 inch cutting units. All units need to be set the same.
* Grease all grease points being careful not to over grease and wipe away excess grease.
* Finally check height of cut is the same on all units.

Do we value the importance of cutting unit adjustment as much as we should? Or put another way: as greenkeepers, how much of our time is dedicated to the cutting units?

I want to examine just a few of the many variables that need to be considered when talking about precision engineering like modern cutting units and achieving the highest standards – an example of how demands are high on groundsman and greenkeepers alike.

In the early Eighties, when I started my journey in this industry, things seemed much simpler.

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It’s also important to consider that poor maintenance and incorrect set-up may impact on a number of other turf operations we carry out to maintain the playing surface.

In some cases poorly set up and maintained cutting units may lead to damage to the turf. This in turn will mean the turf becomes susceptible to disease.

The result is a need for additional chemical application, fertiliser, scarifying, coring and top dressing, all of which comes at an additional cost in time and materials. As well as good unit and machine maintenance, it is also important to remember turf conditions. Mowing equipment cannot remedy a turf
condition. The solution to achieving a good quality playing surface with good aftercut appearance is maintaining the partnership between the turf and the machine. The machine needs to be adjusted so that turf and machine work together.

Before we get onto the turf, we need to consider what roller or bedknife to choose. Rollers such as Wiehle rollers give less support than a full roller and allow the unit to work more aggressively. This will help the bedknife gather and push the grass plant into the path of the reel blade. However, in certain turf or in certain weather conditions we may need to give the front of the unit more support. Solid rollers could be an option although this can cause stragglers as the grass is pushed down and passes under the bedknife rather than being gathered up into the path of the blade.

In these cases an option is to use shouldered Wiehle rollers or inserts to achieve the same additional support. The machine needs to be adjusted so that turf and machine work together.

At this point we need to consider the correct roller or bedknife. We know why the attitude/aggressiveness of the bedknife is important to the mowing operation, gathering the turf and placing it into the path of the blade. But when was the last time your bedknife attitude was checked? Are all three, five or seven units the same attitude?

Have you altered the height of cut and not checked what has happened to the bedknife aggressiveness? You can easily check the angle of the bedknife by using a protractor on a straight rule across both rollers, then on the bedknife. Take the first measurement away from the second to give you the angle.

When you have chosen the correct machine with the correct cutting unit configuration for your turf conditions, including number of blades, rollers and bedknife, it is important to think about ongoing maintenance of your cutting units. Of course this only scratches the surface of correct unit set-up. It does not address the many variables that are involved in machinery set-up to correct quality of cut issues. If you’re not already doing so, this article gives you some ideas of what to check when setting up your cutting units.

Many of the main turf industry machinery suppliers deliver comprehensive training on this subject. For further information contact your representative, whether they are manufacturing grinders and associated equipment, or turf care machinery supplier.

**About the Author**

Albert Strawbridge is a former Golf Course Superintendent for the Foxhills Golf Club in Surrey and the Toro European training manager EMEA. In 2011 The Toro Company employed him as a European and International Turfgrass and agronomy expert. He is responsible for delivering Toro training for their Golf and Turf divisions and their Turfgrass and Agronomy team. Albert has over 25 years of Turfgrass and Agronomy experience and recently completed his Golf Management degree with Mersey University.


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As an example, a Toro Greens DPA the height of cut we want to achieve.

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