GROWTH RATE

Keep It Simple

By Andrew Marsan, Turf Technical Sales Representative, Plant Products.

Don't overcomplicate simple things. Easier said than done, right? It's a common human tendency to complicate our day, which is especially easy to fall into in this profession. There are a lot of moving parts: staff management, budgeting, financial management, environmental compliance, member and guest relations, safety and risk management, record keeping, continuing education, etc. And then, of course, there's that greenkeeping thing—that's important too.

In 2020, I stumbled across a book titled "A Short Grammar of Greenkeeping" by Dr. Micah Woods, founder and Chief Scientist of the Asian Turfgrass Center (ATC). Looking back, it's mind-boggling that a 15-dollar online purchase, which I read in its entirety during a frost delay, could have such a profound effect on me as a golf course superintendent. There was nothing fancy about it, nothing to dissect. It was an insight into greenkeeping at its most basic.

I remember putting the book down and I started to look at turfgrass management in a completely different light.

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Dr. Woods provides a simple definition of the core principle in golf course maintenance: "Greenkeeping is managing the growth rate of the grass to create the desired playing surface for golf." I think about this often and realize that we've talked about data collection and, more recently, OM246, but where this series should have started is at the beginning, with the growth rate.

Consider this. Every maintenance practice carried out on the golf course is in some way or another related to managing the growth rate of the turf. There is no one-size-fits-all approach to achieving the proper growth rate for your surfaces; it depends on a variety of factors. One thing is for certain: maintaining a growth rate that is as slow as possible while not compromising the ability to recover from the traffic that comes with daily play is ideal and produces the best playing conditions. It is explained like this: if there was a golf course with no golfers and therefore no traffic, the optimum growth rate would be no growth at all. For a busy golf course, putting through hundreds of

golfers a day who are walking and driving on the turf, making divots, and leaving ball marks, the optimum growth rate required would be much faster. Whether too slow or too fast, both come with their own set of issues. If the grass is growing too slowly, its ability to recover from daily stresses is a concern. This also encourages the possibility of disease invasion and weed encroachment, and we run the risk of breaking the cardinal rule: always maintain 100% grass cover. A growth rate that is too fast will ultimately result in an abundance of organic material being produced, and we know how that can turn out. Of course, playability can and will suffer on both ends of the spectrum.

If the most critical aspect of golf course maintenance is controlling the growth rate of our turf, and we know that growth is directly linked to photosynthesis, then what are the factors that we can control? Dr. Woods states that four main contributing factors control growth: temperature, light, leaf nitrogen content, and plant water status. Unfortunately, temperature and light are out of our hands, but it is still important to understand the influence of both. We know that turf will grow best when it is grown in full sun, and any restriction will ultimately restrict growth. We also know that the cool-season grasses we manage here in Ontario grow best when temperatures are closest to the optimum for growth, between 16° and 24° C. One can also utilize the turfgrass growth potential (GP) model to better understand the effect of temperature on growth. Keeping this in mind, we can shift our focus to what we can influence: leaf nitrogen content and plant water status.

Our goal should be to maintain a level of plant-available water in the soil that prevents us from reaching a wilting point, therefore not restricting growth. If we can agree on this, then what are we left with? Nitrogen. Two things are going to happen when nitrogen is applied: there will be a colour response, and the grass will grow faster. More nitrogen = increased growth; less nitrogen = decreased growth. It's that simple. If we look at utilizing nitrogen as a tool to manage the growth rate, and we've determined a desired growth rate for our surface, then one can adjust accordingly to maintain optimum conditions.

Everything else will start to fall into place once we get this right. How does one monitor and maintain the desired growth rate? Measure the clipping volume. Instead of calendar- or schedule-based nitrogen and PGR applications, pay attention to how the grass is actually growing. Growing less grass is ultimately going to produce less organic material and can lead to a reduction in the frequency of cultural practices. Monitor your OM246 levels to determine a site-specific benchmark that allows you to hit your performance goals with the least amount of disturbance to the surfaces possible. If nothing else, let's keep one philosophy simple and quote Dr. Micah Woods: "Greenkeeping, at its core, is about controlling the growth rate of the grass. ■