

PGR over-regulation on golf collars

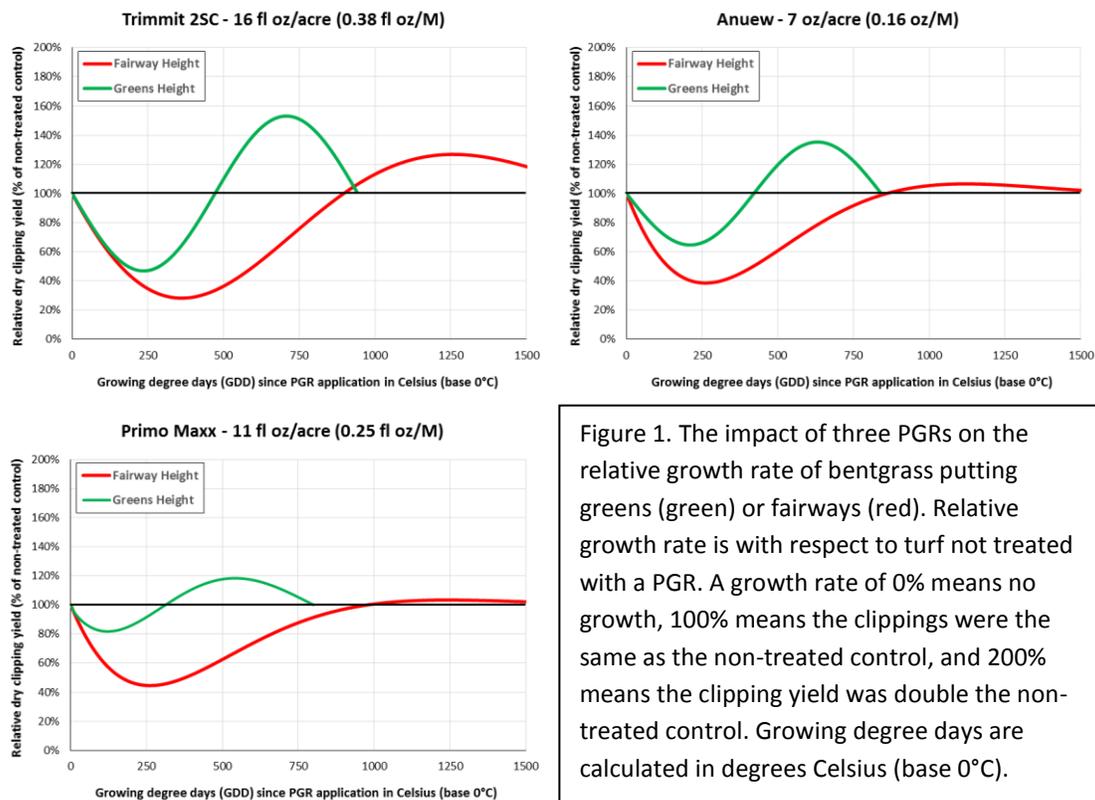
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Many golf course superintendents have begun to apply plant growth regulators (PGRs) to their putting greens. We've successfully modeled the performance of PGR with growing degree days (GDD). Briefly, the length of growth suppression following a PGR application is determined by temperature. Growth suppression will last longer when it is cold than when it is hot. Plants are 'cold-blooded' like reptiles. The internal machinery that is responsible for detoxifying PGRs and other plant protectant products work slower when it's cold than when it's warm. That means applications need to be made more frequently during warm weather and less frequently during cold weather. The past week's cold weather is a classic example where application intervals need to be stretched out to avoid 'over-regulation.' Our free website, [GreenKeeperApp](#), automatically tracks GDDs for different turf areas automatically.

Another important factor impacting the amount and duration of growth suppression is mowing height. We've found that creeping bentgrass mowed at 0.400" is more sensitive to PGRs than greens height turf maintained at 0.120." Figure 1 shows the actual research models for three PGRs applied to either collars or greens at equal rates. We have several hypotheses for why this occurs, but in practical terms, this difference in PGR sensitivity is a leading cause of collar and green surround decline. Stretching out a PGR application to minimize collar over-regulation can lead to an undesirable growth surge on greens. This means managers have to re-apply PGRs for the less sensitive greens. The high application frequency on surround turf can lead to slow or wear traffic recovery.

We are currently researching methods, products, and technologies to minimize collar over-regulation. I'll be leading a field day stop on this topic in July. We'll be testing things like additional nitrogen fertilization, application of exogenous GA hormone, and GPS PGR applications with variable rate technology. In the meantime, I'd recommend using the lowest possible PGR rate on greens, increase your reapplication intervals by 30 GDD greater than the intervals recommended by GreenKeeperApp and plan to attend field day to hear more.

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