

Minimize collar decline: Preliminary observations**June 1, 2018**

Last year we showed plant growth regulator (PGR) applications to collars height turf on putting green intervals can lead to turf decline. This occurred because the PGRs last longer on collars than greens. We think this happens because collars have a slower growth rate and more intense yield suppression, which means slower removal during mowing, cooler canopy temperature to slow degradation, or more PGR absorption. Unfortunately, golf course superintendents apply PGRs for putting greens and not collars. As a result, collars are treated too frequently and the growth suppression intensifies. This reduces traffic tolerance, recovery from disease, and leads to discoloration (Fig. 1).

We are actively investigating ways to prevent and recover from PGR over-regulation on cool-season collars. Here are some of our early observations. Please keep in mind these are preliminary data. We are continuing this research at the East Campus Turf Plots and Jim Ager Golf Course this summer.

- **Spray collars every other PGR application.** This can work out well, because PGRs typically need to be re-applied every 7-10 days on greens (depending on temperature and active ingredient) while the pest control products and collar PGRs might need to be applied 14-21 days. So only treat the green (turning off the booms in the clean-up pass) with PGR as a stand-alone application. A GPS sprayer with individual nozzle control can help.
- **Wash off the collar** when using class A PGRs (trinexapac-ethyl or prohexadione-Ca). They are foliar absorbed products but they are quickly absorbed. This approach won't work with Class B PGRs (flurprimidol and paclobutrazol) because they are root absorbed products.
- We think there is some promise in **lowering mowing height** and **applying extra nitrogen fertilizer** to the collar. This helps stimulate extra growth and removed more PGR in the clippings. These practices are preventative and need to be started before decline is visible.
- **Use a colorant to mask the phytotoxicity.** We had great success limiting the discoloration with Bayer's Stressgard in past years. This won't help, however, if the turf is thinning from too much traffic and not enough recuperative growth.
- Application of very low rates of **gibberellin (GA) did help, but caused real problems** if the rate was too high, if a follow-up application was made a few weeks later, or if turf that wasn't over-regulated by the PGR (Fig. 2). In those cases, this plant hormone will cause an explosion of growth and lead to yellow/etiolated leaves. Until we more do research, this should be considered a last resort before the collar is re-sodded.
- The last option is just **don't apply PGRs to green-collar complexes.** These products can do a lot of good (increase density, color, reduce nutrient requirements, improve stress tolerance), although they do little for green speed on cool-season green. But those benefits are quickly overshadowed if the collars are on the edge of death. If this approach is used, you'll need to likely increase nitrogen fertilization 50 to 100% to maintain quality.

See this research for yourself at Field Day on July 18th. Keep an eye open for the registration info in June.

Bill Kreuser, Assistant Professor and Turfgrass Extension Specialist, wkreuser2@unl.edu

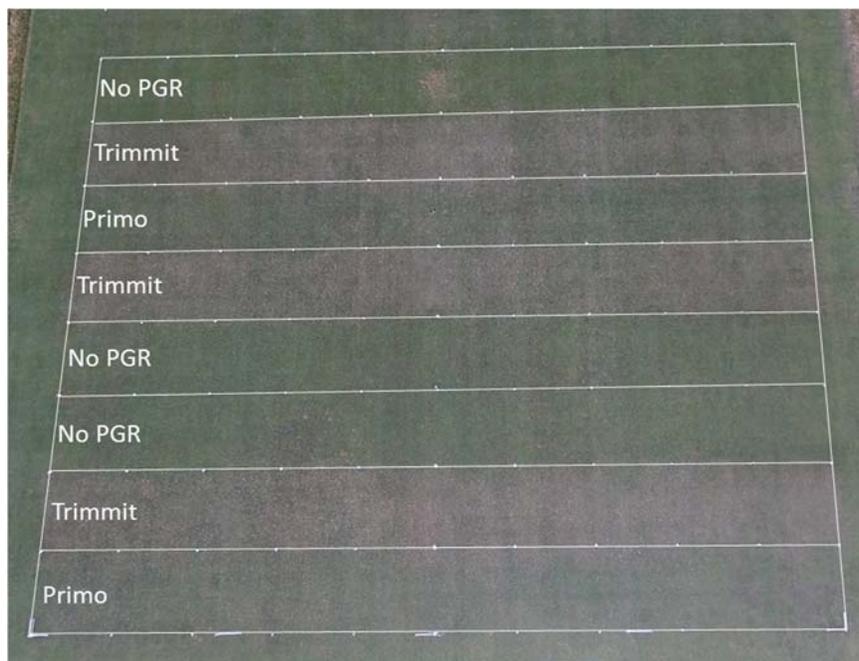


Figure 1. The development of collar decline from PGR applications at putting green intervals. Trimmit was applied every 260 GDD (base 0°C) at 8 fl oz/acre and Primo Maxx at 5.5 fl oz/acre every 200 GDD. After four applications spanning seven weeks, the clipping suppression was 95% and 80% of the non-treated control, respectively. On a green these rates and intervals would suppress clipping yield by 35% and 20%, respectively.



Figure 2. The plot in the top right corner was never treated with a PGR and the bottom right plot was treated with Trimmit 2SC as described above. The collar decline was very pronounced and would have likely been worse if the plot had received traffic. Application of very low rates of gibberellin – the hormone blocked by Primo Maxx and Trimmit – did rescue the over-regulation (bottom left), but too high of a rate, repeat applications, or application to turf that doesn't have PGR over-regulation (top left) caused rapid growth/etiolation and eventual scapling/decline. GA was applied as RyzUp at 0.3 weight oz/acre. This approach should be considered a curative last resort until more research is available.