

In the last 10 years plant growth regulator (PGR) use has gone from a marginal to an integral part of golf course management programs. In the early 1980s mefluidide (Embark) was the first plant growth regulator widely used on fine golf course turf. Embark was and still is primarily used on *Poa annua* or *Poa annua* containing fairways for seedhead control in the cool-temperate regions of the United States.

Paclobutrazol (Trimmit) and flurprimidol (Cutless) followed and were effective and marketed for transitioning predominantly *Poa annua* fairways to creeping bentgrass. With these three PGRs, the common number of applications per year usually ranged from one to two.

In the early 1990s trinexapac-ethyl (Primo) expanded the use of PGRs well beyond the one or two normal applications. At this point PGR use went from the niche-type activities to encompassing the idea of reducing clippings, enhancing environmental stress tolerance, improving color and density, and reducing the severity of certain diseases. To give you an idea of PGR usage, I conducted an informal survey recently.

Last year I surveyed golf course superintendents mostly from Ohio but also from surrounding states and Canada to find out how PGRs were being used. Although it wasn't a scientific survey, some of the information for greens management is of interest.

Ninety superintendents or golf courses responded to my Plant Growth Regulator Survey sent via my e-mail list, representing 26 percent of those on the list. Of those who responded, 30 categorized their putting greens as primarily creeping bentgrass (33 percent), 12 as primarily *Poa annua* (13 percent), and 48 as a mix of creeping bentgrass and *Poa annua* (53 percent). Out of the 90 respondents, 78 said that they made at least one PGR application to their greens (87 percent) annually, while 12 did not (13 percent).

Of the respondents, 84 percent used PGRs for greens management. Based on the greens species composition, 100 percent used PGRs

PGR Use Growing Like . . . Crazy

BY KARL DANNEBERGER



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on primarily *Poa annua*, 85 percent on a mix of creeping bentgrass and *Poa annua*, and 77 percent on primarily creeping bentgrass. Where PGRs used for seedhead control was the greatest was on primarily *Poa annua* greens (75 percent) and creeping bentgrass/*Poa annua* mixed greens (75 percent) with the least on primarily creeping bentgrass greens (13 percent). The PGRs used for seedhead control cited by participants was Embark or Primo/ethaphon (Proxy) combination.

Of the 76 respondents who used PGRs in greens management 82 percent used Primo, while 16 percent used either Trimmit or a Trimmit/Primo combination. Weekly or bi-weekly applications of PGRs for greens management accounted for 85 percent of the application scheduling. I would mention that some respondents replied with a seven- to 10-day schedule or 10-day schedule. If the application frequency was seven to 10 days, it was considered weekly. If 10 days was specified, it was considered biweekly.

Respondents also mentioned that frequency was also based on the growing season conditions. Interestingly, it appears that most superintendents using PGRs, primarily Primo, tend to shorten the application interval vs. increasing the rate.

The broad and frequent use of PGRs is one of the most dramatic changes I have seen in golf course management in the last 25 years.

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