

TRADITIONAL *POA ANNUA* CONTROL STRATEGIES

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Annual bluegrass, *Poa annua* L., has been a serious weed in turfgrass since the beginning of recorded turf history. The Turfgrass Bibliography compiled by Beard, Beard and Martin, which covers most all articles written about turf from 1672 to 1972, has nearly five columns of entries on annual bluegrass control, diseases, management, etc. This represents more than twice the number of entries for creeping bentgrass and nearly as many entries as for Kentucky bluegrass. As many turf managers can attest, annual bluegrass is the most discussed and cursed topic in the turf world.

What materials have been used to attempt to control annual bluegrass? It may save space to list those materials that haven't been tried. Many angles have been tested to control annual bluegrass including formaldehyde applications and even burning! The singifier was basically a propane torch used to attempt to control seedhead production. Needless to say, this approach, like countless other approaches, proved to be a failure.

When discussing annual bluegrass control, it is important to recognize that most turf managers are talking about postemergence control. Several preemergence herbicides exist that can control annual bluegrass as it germinates, but the real goal is an herbicide that can selectively remove annual bluegrass after it has become established in turf. Several chemicals have been labeled for postemergence annual bluegrass control during the last 40 years; however, most have disappeared from the marketplace because they lacked adequate selectivity. Examples include calcium arsenate, lead arsenate, and endothal. Use of these products invariably led to the destruction of desirable turfgrasses. Thus, many turf managers discovered that the "cure" for annual bluegrass was worse than the "disease" itself. These products are no longer labeled for turfgrass use, and currently only two products are labeled for annual bluegrass control in cool-season turf.

Current Approaches to *Poa annua* Control

Based upon results obtained over the last ten years, the best current approach to managing annual bluegrass is a growth regulator, paclobutrazol (Trimmit™, Turf Enhancer™) that selectively regulates annual bluegrass more than creeping bentgrass and other turfgrasses. In some respects this is the ideal approach to controlling annual bluegrass in high maintenance turf, since the results are gradual and may not be noticed by the casual observer or user of the turf.

Unfortunately, the use of paclobutrazol generally does not eliminate annual bluegrass from a turf stand, but reduces its proportion within the turfgrass stand. Best results are obtained when paclobutrazol is applied regularly throughout the growing season. Turf managers have found that spacing applications every two to three weeks generally gives the best results. I have observed that paclobutrazol provides the highest level of annual bluegrass suppression in the early spring, and by summer, the differential growth suppression between species has narrowed. So, while continued use throughout the summer is justified, less annual bluegrass suppression is obtained during the summer. Turf managers have also found that once a program of regular

applications has been initiated, rates of paclobutrazol can often be raised substantially without negatively affecting turf quality. Paclobutrazol can discolor turf, particularly annual bluegrass, and this is most likely with the first application of the spring. Subsequent applications have less potential to cause turf injury.

Rates to use depend upon the grass species and use. Putting greens typically receive the lowest rates, while fairways can tolerate higher rates. Use rates are typically in the range of 4-6 oz prod/A (current formulations contain 2 lbs product per gallon) on greens and 6-9 oz prod/A on fairways. Rates are often raised as turf managers enter the summer months or following use experience. Since this is a long-term program that will be used for several years, it is best to start slowly and gradually raise rates over time.

Despite consistent use of this product, most turf managers have found that it will not completely eliminate annual bluegrass. I would recommend the use of a preemergence herbicide in the late summer, particularly before fairway aerification, to reduce the emergence of new seedlings into the turf. Since most germination of annual bluegrass occurs in the late summer/early fall, preemergence application timing should be close to the Labor Day weekend.

I believe that paclobutrazol (and its kissing cousin, flurprimidol (Cutless™), which is being reintroduced in the turf market) are the best, current approach to managing annual bluegrass. Control is gradual and turf safety is excellent, although annual bluegrass will not be eradicated with this approach.

Ethofumesate – an enigma wrapped in an herbicide label

Ethofumesate (Prograss™) is an herbicide that directly kills established annual bluegrass in cool-season turf. It has been labeled for many years for the control of annual bluegrass in perennial ryegrass, creeping bentgrass, and Kentucky bluegrass turfs. This product has proven to be very difficult to get consistent results. The label calls for 2-3 applications in the fall as the turf is approaching winter dormancy. During the winter months, annual bluegrass becomes discolored and bleached in appearance. During the spring green-up period, annual bluegrass either dies or greens up to a brilliant, growth-regulator induced state of near perfect turf, or anything in between these two extremes. Despite years of research, consistent results with ethofumesate have not been obtained. I have personally spent considerable time trying to refine and improve the consistency of ethofumesate for annual bluegrass control. While we have obtained consistent control of annual bluegrass by applying ethofumesate at 2-3x label rates in the spring of the year, this results in what I called traumatic control. That is, the annual bluegrass does tend to die, all at once, leaving a golf course with large bare areas in the middle of the spring - another case of the cure being worse than the disease. This highlights the problems encountered with any selective herbicide to control annual bluegrass, once annual bluegrass reaches 10-15% of the turf population, use of a selective herbicide will result in large bare areas on the golf course. With tremendously large reservoirs of seed in the soil, annual bluegrass will repopulate the bare areas with considerable success, leaving the turf manager in better shape than when he started but with annual bluegrass still present in considerable quantity.

Most golf course superintendents will find that the best results are obtained by using ethofumesate on a regular i.e. yearly basis when annual bluegrass populations are low. Attempts to eradicate large populations, >20%, are to be discouraged and complete renovation would be the best approach under these conditions. Alternatively, use of the growth regulators mentioned above for 2-3 years may reduce annual bluegrass populations to levels that would allow the safe use of ethofumesate or other selective, postemergence herbicides.

Conclusions

An effective, safe postemergence herbicide is needed to truly control annual bluegrass. Even when such a product exists, turf managers will have to be diligent in its use, because annual bluegrass has a habit of becoming a large component of the turf stand in a relatively short time, and once that happens the use of a selective herbicide will result in poor quality turf. Annual bluegrass is extremely well-adapted to highly maintained turf, and its elimination remains problematic even with the prospect of a new, selective herbicide or Roundup Ready turf.