WEED CONTROL STRATEGIES FOR ATHLETIC FIELD MANAGERS: LET'S BE CULTURED ABOUT IT

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Athletic field managers have a tough job. The stress and strain to which athletic fields are subjected leaves them vulnerable to weed invasion. Further, the use pattern of the fields often means the manager is trying to reestablish turf in the spring when weed pressure is extra-heavy. What's a manager to do? Well, such challenges may limit your options, but that doesn't mean there are no courses of action left to take. Weeds do not have to win out— successful weed control in athletic fields just takes more planning and creative thinking than in less intensively trafficked situations.

Effective weed control in athletic turf also means we need to think "out of the box". Too often, weed control is thought of in strictly chemical terms. Herbicides are vitally important tools, but cultural controls are even more important, and are the place to begin when developing your weed control strategy. Accordingly, we will deal with cultural control techniques in this article.

Cultural control starts with identifying and understanding the weeds you are trying to control, continues with adjusting mowing, irrigation, fertilization, and cultivation practices to tip the scales in favor of the turfgrass, and ends with using high-quality seed for renovations. Don't lose sight of the fact that weeds are competing with the turfgrass for space and for resources like water, light, and nutrients. You want to increase the health and vigor of the turfgrass stand while minimizing positive benefits to weeds.

Learn to identify weeds and familiarize yourself with their growth habits and life cycles. Is your target weed a grass or a broadleaf type? Warm- or cool-season? Is it perennial or annual? If it's an annual, is it a summer or winter annual? Prostrate knotweed is a common broadleaf weed in athletic turf, but because it is an annual, germinating in late winter or very early spring, control strategies will be different than for perennial broadleafs such as dandelions or clover. Also, because knotweed tolerates compaction better than turfgrasses, cultivation is a critical technique in its control. The point is, if you can't identify a weed, or don't understand its life cycle and growth habits, you won't know which practices to employ to discourage it.

Mowing is a simple practice, that, done properly, can pay huge dividends in weed control. Mowing frequently results in a denser stand of grass that is more resistant to weed invasion. Follow the "one-third" rule, that is, never remove more than a third of the grass' height at any one mowing. Avoid mowing too low. Mowing low favors weeds such as crabgrass and annual bluegrass. For bluegrass, fescue, or ryegrass fields, keep the height at two to three inches, especially in the spring when crabgrass is germinating. Crabgrass won't germinate without light, and taller grass keeps light from reaching the crabgrass seeds at the soil surface. Taller grass is also more wear tolerant. Three inches gives you even more weed resistance and wear tolerance than two, but sometimes coaches demand the lower height. Don't let them get you to go below two inches, though!

Irrigation practices affect weed populations as well. All seeds require moisture in the surface zone of the soil in order to germinate and get established, and turfgrasses are no exception. However, once a new turfgrass stand develops some rooting depth, allow the surface to dry out some between irrigations, gradually moving to a deeper, more infrequent irrigation program. Irrigating in this manner will reduce weed seed germination. Don't go to the extreme of stressing the turfgrass. Stressing the turf will thin the stand and lead to opportunities for weeds to invade— exactly what you don't want.

Fertilizer applications should be timed to favor the turfgrass— for cool-season grasses that means fall and spring. Ill-timed applications, such as in the summer, will shift the competitive edge to weeds that thrive in the summer heat. Pay special attention to phosphorus applications. Phosphorus is important for growth and development of both turfgrass and weed seedlings. Therefore, in a mature stand, don't fertilize with phosphorus unless a soil test indicates that a deficiency exists. Once again, the goal is to give the turf just what it needs. An excess of phosphorus in the surface zone unnecessarily favors unwanted weed seedlings.

Cultivation (e.g., core aeration) can be both a help and a hindrance in weed control efforts. Where compaction has shifted the competitive edge to compaction-tolerant weeds such as knotweed or annual bluegrass, cultivation techniques are essential. The resulting reduction in compaction restores the vigor of the turfgrass stand so that it can out-compete the weeds. Timing of cultivation is also important. Poorly timed cultivation practices bring soil and weed seeds to the surface during those times of the year when conditions are ripe for the weed seeds to germinate. Avoid cultivations

during mid- to late-spring when crabgrass and other annual grasses are likely to be germinating. Early spring aerations will allow the turf time to recover before annual grass germination begins. If annual bluegrass (a fall-germinating winter annual) is a problem, then avoid cultivating during August and September. Of course, preemergence herbicides can be used in conjunction with cultivation to prevent weed seed germination, but use of preemergence herbicides may interfere with your seeding plans. Finally, do not cultivate during the summer heat. Cool-season grasses are under stress during the summer and are slow to recover from cultivation. Summer cultivations consequently tilt the scales in favor of warm-season annual and perennial weeds.

By necessity, athletic field managers regularly overseed their fields. Unfortunately, they may be unwittingly introducing weed problems at each overseeding. Poor quality seed may have unacceptable levels of weed seeds that can turn into weed control nightmares. Many of the worst weed problems in turfgrasses are unwanted perennial grasses such as orchardgrass, quackgrass, or rough bluegrass (*Poa trivialis*). Because of the idiosyncrasies of the seed labelling laws, these weeds fall under the "other crop" category on the seed label. To give you an idea of the potential problem, if a bag of Kentucky bluegrass seed contained 0.5% (that's *one-half* of one percent) *Poa trivialis* seed, then, when the bag of seed is planted at a typical Kentucky bluegrass rate of 2 lbs per 1000 sq ft, you would also be "planting", on average, 25 *Poa trivialis* seeds in *each square foot of the area you have seeded*! Therefore, it is in your best interest to obtain seed that has as little "other crop" seed as possible— ideally none, although that may not be practical. Your best defense is to use only high-quality seed from dealers you trust. The extra cost of good, clean seed will pay for itself many times over in the long run.

So, in summary, think "cultural first" when developing strategies for weed control on your fields. Start by knowing your weeds, and understanding their life cycles and growth habits. Then adjust your mowing, irrigation, fertilization, and cultivation practices to give the competitive edge to the turfgrass stand. Finally, save yourself the headaches caused by introducing difficult-to-control weeds in poor quality seed. Following these agronomically sound suggestions will not eliminate your need for herbicides, but it will undoubtedly decrease your reliance on them, saving you time and money in the long run.