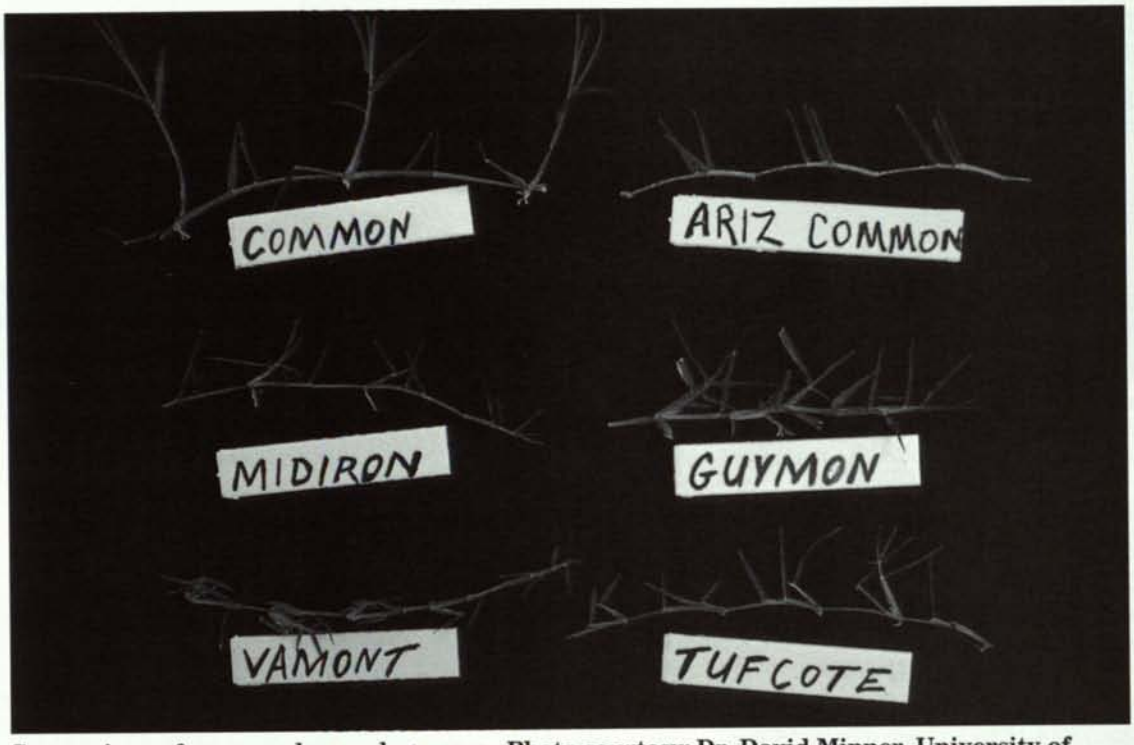
CURING THE BERMUDAGRASS BLUES



Comparison of common bermudagrasses. Photo courtesy: Dr. David Minner, University of Missouri, Columbia, MO.

By Bob Milano

Bermudagrasses, particularly the hybrids, have proven valuable for turf managers in the sunbelt and even in some portions of the transition zone. But to many of us in the transition zone and farther north, bermudagrass is a troublesome weed in our cool-season turfs, such as Kentucky bluegrass, perennial ryegrass, and turf-type tall fescue.

Unwanted common bermuda can turn a smooth, uniform athletic field into an ugly, dot-to-dot matrix as it slowly turns brown and begins dormancy in the fall. In local parks, this may not be a major concern. But for high-use cool-season fields such as those for football, baseball, soccer and rugby, unsightly brown patches are not acceptable.

All the reasons that make bermudagrass the ideal turf for the sunbelt make it difficult to control when unwanted. It's an invasive perennial, tolerant of drought, and reproduces both vegetatively and by seed. Current control methods, which include mechanical removal, cultural practices, and non-selective herbicides have had limited success. Testing of a new selective herbicide is showing some promise.

Mechanical Control

The first control method, physical removal of invading bermudagrass plants, usually isn't the most practical choice. Physical removal can be extremely tedious, as ideally each stolon and rhizome needs to be identified and eliminated. In addition to complete removal of the above-ground portion of the bermudagrass, all below-ground segments need to be removed to keep the plant from generating new growth. This might require removing the soil to depths of 18 inches or more to ensure all below-ground bermudagrass parts are eliminated.

This approach is time-consuming, labor-intensive, and inefficient. Occasionally, it may be the preferred method for very small areas, such as patches in a baseball infield that will undergo renovation. Combined with immediate resodding, mechanical removal can be a quick and effective approach for certain highly-visible, key areas.

Non-Selective Herbicides

A second approach to post-emergence bermudagrass control is spot application of a non-selective herbicide such as glyphosate. This can be effective, particularly if a large block of time is available for eradication and subsequent repair activities.

If the facility schedule permits, non-selective herbicide applications should be made in late summer or early fall, while the bermuda is still actively growing. Once the bermudagrass has been killed, the areas can be either seeded or sodded immediately.

Eradicating the bermudagrass in early fall will not provide a long enough period of warm temperatures for it to reestablish into the repaired areas. The early fall window also offers an ideal time to reestablish cool-season turfs. By utilizing these two critical cultural facts, your success will be high.

Maintenance Practices

The third element to controlling bermudagrass, as well as other warm-season grasses, is the cultural

continued on page 32

Bermudagrass

continued from page 27

program you use to manage your cool-season turf. The decisions you make about day-to-day maintenance activities will have a dramatic impact on the likelihood of common bermudagrass invading your cool-season turf and the severity of such invasion.

If your equipment — mowers, tractors, and implements — receives widespread use on bermuda-contaminated sites, it is crucial to clean the units before each use on cool-season turf. Though this may appear very simple, turf managers often overlook the prevention of bermudagrass contamination through the spread of plant segments capable of generating growth in new locations.

Additionally, the decisions you make on mowing height, timing, and frequency of aerification, topdressing, overseeding, irrigating and fertilization all impact the likelihood of an invasion by an undesirable warm-season turf.

In essence, you need to evaluate the impact of your proposed maintenance operation, not only on the desirable grasses, but also on the grasses (weeds) that you would like to keep out. For example, lower mowing heights favor bermudagrass, particularly during the summer, while higher mowing heights tend to give the cool-season grasses a competitive advantage.

Monitor the timing and frequency of core aeration. Scheduling aerification of cool-season grasses in the summer would not be recommended. This practice would open areas for potential invasion by bermudagrass during its most active growing season, and at the same time stress the cool-season turf, compounding the likelihood of invasion by heat-hardy bermudagrass and other weeds.

If summer aeration is essential to relieve compaction, use the least disruptive methods and try to time the practice with periods of cooler weather. Ideally, core aeration combined with overseeding and topdressing would be timed to coincide with cooler fall temperatures and the natural decline of the bermudagrass.

Irrigation and fertilization programs also can be used to stimulate cool-season turf growth and discourage bermudagrass activity. Adjust watering intervals to ease drought stress in cool-season turf. Use frequent soil tests to monitor nutrient levels. Cut back on summer fertility and time applications to coincide with the spring and fall growth cycles of the desired turf.

Avoid opening the door for bermudagrass invasion by managing the use of cool-season turf to avoid unnecessary stress.

Avoid opening the door for bermudagrass invasion by managing the use of cool-season turf to avoid unnecessary stress. On athletic fields, monitor turf conditions and schedule field use to provide recuperative periods when needed. Whenever possible, work with field users to rotate practices to lesser-used fields or portions of the field that receive less traffic.

Selective Herbicides

The final approach is the application of selective herbicides that, ideally, will eradicate the bermudagrass and retain the cool-season grass. Selective materials have long been the goal of many herbicide developers. The ideal product would kill off the tough bermuda and leave the desirable cool-season grasses unharmed.

So far, no selective herbicide has been totally effective or reliable against unwanted bermudagrass. However, Turflon is showing some promise in research and testing at the University of California at Davis, under the direction of Clyde Elmore, extension weed scientist.

The work is exploring the potential uses of the herbicide Turflon as a control agent for bermudagrass in tall fescue, perennial ryegrass, and Kentucky bluegrass turf. Both informal and formal trials have been conducted. These included single applications as well as sequential applications to areas invaded with both common bermudagrass and broadleaf weeds.

Initials results of the single foliar application have shown the bermudagrass was stressed and experienced some foliage decline. The suppressed growth has provided the cool-season grasses with a competitive edge, and achieved some level of bermudagrass control, but not its eradication.

Sequential applications of Turflon appear to be more promising. A second and third application appeared to increase the overall stress on bermuda plants and resulted in the death of more bermuda plants. The bermudagrass plants that were not killed were suppressed dramatically.

The most promising indication of control has resulted from a combined application of Turflon and Acclaim (a crabgrass post-emergence product). This combination continues to undergo testing to determine why it appears to be more effective than other applications initially tested. Although this combination is strictly experimental and should not be duplicated without proper permission, it may provide some hope for an extremely effective bermudagrass control product in the near future.

Avoid the Blues

Overall, just as the doctor prescribes, the best way to avoid the bermuda blues is prevention. Though efforts to provide a highly effective selective bermudagrass control product continue, turf managers need to do their best to prevent the bermudagrass infiltration of cool-season turf.

We can prevent bermudagrass invasion by carefully managing the entire cool-season turf system. This includes:

- Sanitary practices;
- Cultural practices;
- Use patterns.

If your cool-season turf is invaded by bermudagrass, consider the three post-emergence applications:

- Mechanical control;
- Non-selective herbicides;
- Selective herbicides (if and when available).

Above all, remember that you are managing a complex growing system and that no one solution is a panacea. Use all the tools at your disposal to avoid the bermuda blues. ❑

Editor's Note: Bob Milano is grounds operations manager, University of California at Davis Physical Plant, and a former board member of the national Sports Turf Managers Association.