

Bermudagrass Solutions Transition Zone Fields

By Dave Minner



Typical low-budget practice field in the transition zone where spring and fall seedings of cool-season grasses have failed.

Trying to grow cool-season grasses in transitional climates with limited resources can frustrate managers of football and soccer fields. Usually the only time available to repair thin or damaged fields is from mid-May to mid-August, when these grasses are most difficult to reestablish.

If you have found yourself in this seemingly impossible situation, then you may want to consider bermudagrass as a means of establishing at least a reasonable stand of grass by the beginning of each football season. The goal for safe, low-maintenance fields is complete vegetative cover, not necessarily a beautiful, uniformly green appearance. We need to realize that when an athlete contacts the ground, color is of little importance.

Bermudagrass is a warm-season grass that can be successfully established or renovated during the summer, when fields are seldom in use. Fields that have heavy traffic in spring and fall rarely have enough time for reestablishment by seeding with cool-season grasses. Late spring and sum-

mer seeding of cool season turf is almost never successful here in Missouri.

On the other hand, late May through mid-summer is the best time to successfully establish or renovate bermudagrass. This fast-growing, fast-spreading grass has aggressive, creeping rhizomes. Its stolons can spread as much as three feet during the summer to cover worn areas. The result is a tough, wiry surface which results in good traction.

Bermudagrass is an excellent choice for practice football fields that receive most of their use early in the season (August through September) while it is still growing. Even when dormant, bermudagrass has good traction and cushion, so long as the dormant mat of vegetation is not entirely worn away.

If late season appearance is important, or the field is used to the point where the mat becomes damaged, bermudagrass can be overseeded with cool-season grasses. You may also try mixing it with perennial ryegrass to improve the success of late spring and summer seedings for repair of

cool-season athletic fields. This will usually ensure green cover and improved field performance during the early part of the fall playing season. It is especially popular where good turf cover during the playing season takes precedence over a uniform green color throughout the growing season.

The problem with bermudagrass is that it has the potential for winter injury in some portions of the transition zone. In my opinion though, managers of low-budget fields with limited irrigation should be more concerned with the potential for summer recovery of bermudagrass, rather than its likelihood of winter kill during extreme years.

Bermudagrass may not be a practical solution in portions of the transition zone where winter kill occurs on a yearly basis. However, in other areas of the transition zone, it may persist for five or even ten years with no severe winter kill. Consult your state extension specialist and local golf course superintendent to see how it performs in your area.

Bermudagrass will turn brown and go dormant after the first frost, leaving the field with poor color and recovery potential during the last half of the fall season (October to November) and during the entire spring season (March to mid-May). During the fall and spring it will be completely brown, and easily distinguished from weeds and other cool season grasses that are present. Fields that are entirely bermudagrass will have a more uniform appearance.

Although bermudagrass will tolerate drier conditions and requires less irrigation compared to cool-season grasses, it still requires some irrigation or timely rains during establishment and when recovery of worn areas is necessary.

There is no substitution for adequate irrigation. It should be the top priority in upgrading athletic fields. An irrigation system must be able to evenly supply a minimum of 1/4 inch of water to each field every day if necessary. Bermudagrass should not be viewed as a substitution for irrigation, proper fertility, or a regular cultivation program.

Most improved varieties must be established vegetatively as sprig, plugs or sod.

for Low-Budget

On low-budget playing fields, availability, cost and specialized planting equipment may be a deterrent to using vegetative-type bermudagrass. Recently, seeded types of bermuda have been established to offer an easy, effective means of reestablishing worn-out areas during the summer, when field activities are minimal.

Midiron is one improved vegetative-type of bermudagrass. This hybrid, selected from Kansas State University, has a good winter hardiness and medium leaf texture. It also has slow recovery from traffic injury.

Tifway and Tifway II have a dark green color. Tifway II is a radiation-induced mutant of Tifway. Compared to Tifway, Tifway II makes a denser, more weed-free turf, is more frost tolerant, has earlier spring green-up, and has better quality turf.

Vamont is another improved vegetative-type bermudagrass. Released by Virginia Polytechnic Institute, it is used primarily in the eastern portion of the transition zone. Vamont is an aggressive spreader that is not as coarse as common bermudagrass, but its winter hardiness is inferior.

There are several less-improved vegetative-type bermudagrasses. Oftentimes, sod producers may offer local selections of bermudagrass that are not certified. Even though they are not, they may be well adapted to survive in the localized areas from which they developed. In Missouri, Westwood and Springfield are two local selections that have performed well.

Westwood was selected from Westwood Country Club in St. Louis, MO. It is very aggressive and has good winter hardiness, coarse texture, and excellent summer recovery from spring and fall sports. It is the most popular bermudagrass used on athletic fields in Missouri.

U-3 is an earlier release by the USGA Green Section and the USDA. Extensively used in the '50s and '60s, it has proven susceptible to winter injury and spring dead spot.

Tufcote, released by the University of Maryland in 1962, is another less-improved vegetative-type bermudagrass. It has rapid spread and moderate wear resistance, but has received only moderate use.

Seeded bermudagrasses are possible



Broadcasting sprigs by hand for spot renovation.

alternatives to vegetative types. Common bermudagrass, sometimes referred to as Arizona common, will establish a complete turf cover during the summer. Since the seed is usually grown in Arizona, Oklahoma and Georgia, common's winter hardiness is questionable. It is most susceptible to winter kill during the first season of growth. Common may persist for several years if it survives the first year. It is highly variable in performance and usually coarse-textured.

Guymon is a joint release from the Oklahoma AES and the USDA. It has a medium-to-coarse leaf texture and is believed to have good winter hardiness. It should not be mowed lower than a 3/4-inch height. At this time, Guymon is the only seed type that has improved winter tolerance, compared to other seeded common types.

NuMex Sahara was released by the New Mexico AES in 1987. Its adaptability for transition zone athletic fields has not been thoroughly evaluated. It is believed to have slightly better winter tolerance than Guymon, and better turf quality and density than either Guymon or common.

Bermudagrass should be seeded between early May and mid-July. August seeding or sprigging is not recommended, because there is not sufficient time for proper establishment before cold weather or sports. Seeding before May will result in heavy competition from spring weeds. Bermudagrass will not germinate or grow until soil temperatures have adequately warmed. Always use hulled seed for better germination and faster establishment.

To provide a faster cover with bermudagrass, some sports turf managers overseed newly sprigged or plugged improved types of bermudagrass with common seeded bermuda. In the northern portion of the transition zone, common bermudagrass will likely die out during the winter, but improved types will fill in during the following summer. Use one to two pounds of hulled bermudagrass seed per 1,000 square feet.

Vegetative bermudagrasses can be planted as plugs, sprigs or sod. Sod can be cut and laid from late March through July.

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However, do not install dormant sod on fields used during the spring. Bermudagrass areas beyond the end zone can serve as a nursery for annual reestablishment of worn areas, thus eliminating the need to purchase vegetative bermudagrass

during the early spring so that broadleaf herbicides will not interfere with summer establishment of bermudagrass.

The surface must be regraded if necessary, immediately after spring athletic games are over. Irrigate in late April and early May to germinate as much crabgrass as possible.

Where no desirable grasses exist, kill all

clippings can be removed, begin mowing at a height of 0.75 to two inches. MSMA and DSMA applications should be made according to their label recommendations to control crabgrass that competes with the establishing stand of bermudagrass.

One of the reasons bermudagrass has been recommended is its ability to maintain active growth and recovery during typically dry summers in Missouri. However, establishment will be greatly enhanced if some irrigation can be provided. Sprigs should not be installed unless they can be kept moist for at least the first three to six weeks after planting. Seeded bermudagrass will not germinate and establish unless rainfall or irrigation keep the top inch of soil moist for a minimum of two to four weeks.

Ideally, temporary or permanent irrigation should be available to supply water daily for the first month after planting, and at least twice a week thereafter. During the first three weeks, water shallowly and frequently to keep only the area of actively growing roots moist. As plants begin to tiller and produce deeper roots, irrigation should be applied to a deeper depth with less frequency.

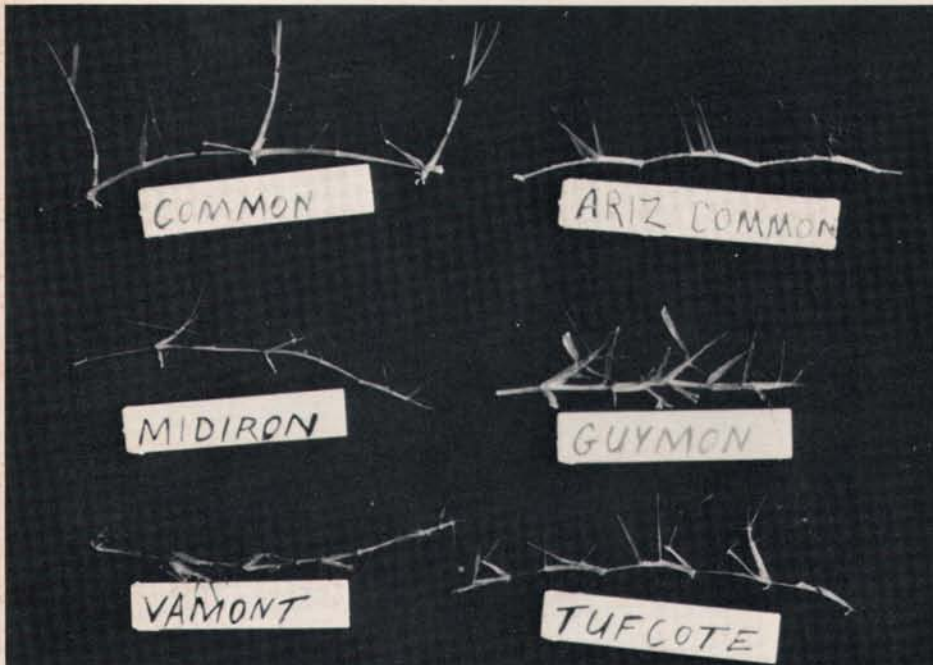
Established bermudagrass will usually survive even the driest summers in Missouri. However, if bermudagrass has been severely worn and is expected to rejuvenate from rhizomes and spread into bare areas, it will require weekly water from either rain or irrigation.

When bermuda is seeded, sprigged or plugged there will be exposed soil areas during the summer that will rapidly fill with weeds such as crabgrass, nutsedge, spurge and knotweed. No pre-emergent herbicides should be used in the spring and summer on weakened bermudagrass, or when attempting to establish new bermuda in the summer.

Annual grass weeds and nutsedge can be controlled with post-emergence applications of MSMA or DSMA. Repeat applications seven to 14 days apart may be necessary for adequate control. Delay application of MSMA or DSMA until turfgrass rooting has occurred and spreading stolons are visible. Try to time your MSMA application after three to four mowings, when warm-season grasses will be actively growing and crabgrass will begin to dominate the turfgrass canopy.

Common bermudagrass on weak fields can be overseeded with perennial ryegrass on a yearly basis, just to provide a cover of grass during the first portion of the fall playing season. A broadcast seeding of perennial ryegrass in late August or early September (seven to ten pounds per 1,000 square feet), without mechanical incorporation of the seed, will provide improved appearance while bermudagrass is dormant in late fall and early spring.

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Bermudagrass varieties show differences in texture and density.

each year.

Plugs are usually one to two inches in diameter, with one to two inches of soil attached. They should be fitted tightly into prepared holes, and stamped firmly into place. Plugs are generally placed six to 12 inches apart. Closer spacing may be used to hasten cover of the turf area.

Sprigs are pieces of torn turf, usually containing a stolon with roots and as many as four nodes. They can be planted by broadcasting them over loose soil, followed by a light discing to partially cover them with soil. A portion of each sprig should remain exposed after planting. Mechanical spriggers are also available. In either case, the sprig should promote roots and creeping stems from the nodes.

Sprigs can be purchased by the bushel. Plant eight to ten bushels per 1,000 square feet. Sod can also be purchased and processed into sprigs. One square yard of sod will make approximately one bushel of sprigs. Areas that are sprigged can also be overseeded with a 1/2 pound of bermudagrass seed and four pounds of perennial ryegrass per 1,000 square feet to provide a quicker and denser cover by mid-August.

There are several steps to renovating with bermudagrass. Fields must first be prepared. Broadleaf weeds, particularly knotweed and speedwell, must be controlled

vegetation with glyphosate, and seed or sprig in seven to 14 days. If desirable grasses exist, kill newly emerged crabgrass with MSMA or DSMA and seed or sprig 14 days after application.

Killing the first flush of crabgrass before seeding or sprigging bermudagrass will reduce crabgrass competition, and its need for control during the remainder of the year. Bermudagrass will establish much better if it has less weed competition, and if applications of post-emergence herbicide are held to a minimum.

When seeding, loosen hard soils and prepare a seed bed by intensively coring, spiking or slicing. After seeding, lightly rake or drag the surface to ensure good seed-to-soil contact. If a drill or slit seeder is used, make at least two passes in opposite directions using a quarter of the total amount of seed. The remainder of the seed should be broadcast to provide faster and more uniform coverage.

Add lime, if needed, and fertilizer. Apply one pound of nitrogen, phosphorus and potassium per 1,000 square feet per month during the first three months of establishment. Make the lime and first fertilizer application immediately before preparing the seed bed to improve incorporation into the soil.

Water frequently to encourage germination and rapid turf coverage. As soon as