Some Ideas for Easing The Southern Transition Blues

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"And he gave it for his opinion, that whoever could make . . . two blades of grass to grow upon a spot where only one grew before, would deserve better of mankind . . . than the whole race of politicians put together."
Jonathan Swift (1667-1745), *Gulliver's Travels*

SOUTHERN superintendents indeed deserve better of mankind for growing one blade of grass on top of another. While accomplishing this neat trick, they must keep the bottom one (bermuda) alive and the top (cool season) one in excellent putting green condition. Then, eight months after having covered the bottom grass, they must make it reappear again (as if nothing had happened) as a dense, smooth putting turf. If he were alive today, Jonathan Swift would certainly elevate the southern golf course superintendent well above the whole race of politicians.

Southern superintendents with bermudagrass greens must overseed every fall in order to provide a green, renewable playing surface for the winter. The grasses used for this purpose are called by a variety of names, such as wintergrass, overseeding grasses, or simply the overseeding. On the other hand, the term "spring transition" refers to the dying (or dieback) of the overseeding and replacing it with renewed bermudagrass growth in the spring. Fall (perhaps summer) is really the time to begin working for a successful spring transition! The seed selected and the preparation of its seedbed will greatly influence next spring's growth. Vigorous dethatching, or verticutting, to remove organic material, living and dead, plus scalping at overseeding time, may so severely weaken the bermudagrass that there is a greatly reduced chance of its surviving until spring transition. Shade, diseases, nematodes, and poor nutrition may all be working against it.

Spring transition may occur very gradually or abruptly. The goal is to have such gradual transition that, after it has occurred, the golfers are still asking when it will take place. They remember too well the years when it occurred abruptly. Overseeding bermudagrass greens creates, for most superintendents in the South, their two most critical problems. One, providing the golfers with a successful overseeding in the fall, and two, providing them with a successful transition back to bermudagrass in the spring.

There are three major types of bad spring transitions:

(1) Death of the bermudagrass by an extremely cold winter;

(2) Severe thinning of the bermudagrass by long and strong competition from the overseeding;

(3) Sudden death of the overseeding.

The worst transitions occur when you have number one or number two conditions and then there is a sudden death of the overseeding.

In order to prevent death of the bermudagrass, one needs to maintain it as a very healthy turf before overseeding. Be sure not to damage it too severely when preparing to overseed. The most successful programs accomplish verticutting, aerification, and dethatching at least a month prior to the seeding date. Then the actual overseeding is often preceded and followed by topdressing. Aerification just prior to overseeding usually results in favored germination and growth of the seedlings in the aerifier holes and thus a tufted or checkerboard appearance results.

Bermudagrass winter survival is best on loose, porous soil mixes such as those found in greens built to the USGA specifications. Not only do such mixes encourage deeper rhizome development, but there are also less disease problems in well-drained soils. Late summer aerification assists in winter survival in a like manner. The rhizomes are the important part of the plant, as far as winter survival is concerned. The deeper the rhizomes, the better their ability to survive. The depth of the rhizomes appears to be increased by aerification of the soil. The more large air spaces in the soil, the deeper the rhizomes. Thus, late summer and early fall aerified bermudagrass survives cold winters better.

New bermuda growth from a stolon and a rhizome. In severe winters, only the rhizome will survive.

Everyone managing overseeded bermudagrass greens should realize that bermudagrass will not gain strength after overseeding. It will merely grow weaker from competition and winter dormancy until it has put up new shoots in the spring, which have survived on the putting surface. To insure good health before overseeding, soils should contain adequate potassium. Iron added to late summer and fall spray programs improves winter survival in dry winters. The amount of shade from trees must be reduced at the end of each summer, a month or more before overseeding. Low light intensity prevents bermudagrass from building up adequate food reserves before entering winter dormancy. Diseases of late summer and early fall must be kept under control to insure a vigorous, healthy plant before winter.

Rates for Overseeding and The Grasses

What about the effect of seeding rate? You must not forget priorities. You

overseed to provide a playing surface that in some areas may be the putting surface for eight months. You therefore must choose the rate that gives the best playing surface for the grass species or combination of species you are using. There does not appear to be any data that proves that an acceptable range of seeding rates, either a light or a heavy rate of seeding, will insure bermudagrass survival in spring. However, Charles White, the Green Section's Southeastern Director, says courses using only 20 to 25 pounds of a perennial ryegrass blend per thousand square feet are having better spring transitions than those using the higher rates of 30 to 35 lb./M. However, these courses lose two to four weeks of good playing surface in the fall because of slower surface establishment at the lower seeding rates.

Have you chosen the correct species, cultivars, mixtures? The plant breeders and seed companies have not provided us with the ideal grass as yet, but they do provide plenty of choices. The various grasses used, often in combination (but sometimes alone) are bentgrasses, fine fescues, perennial ryegrasses, annual ryegrasses, *Poa trivialis*, and Kentucky bluegrass. The preference in recent years has been for perennial ryegrass alone or in combination with one of the other grasses.

The ideal overseeding grass must germinate quickly, establish rapidly, tolerate frequent close mowings, heavy traffic, and frost, and fade away unnoticed as the bermudagrass comes on in the spring. Needless to say, finding a turf species that will take all sorts of abuse and then fade away gently and quietly is not to be expected. Those who overseeded greens in the northern half of the bermudagrass belt this year probably tried to pick a turf species or cultivars that will not persist in the spring as well as perennial ryegrass has in recent years. However, this will probably be a short-lived trend, as the quality of putting surfaces will be less superior and one will quickly forget the poor transition in 1982 and go back to the valuable qualities perennial ryegrass offers. It should be noted, though, that a broad genetic base of more than one turf species and several cultivars gives more security from dangers of disease and severe cold weather, and also tends to give a more gradual transition in the spring.

It is true that the new perennial ryegrasses do offer a tremendous amount of competition to the bermudagrass in the spring. However, maintenance can be adjusted to compensate for this added vigor. More frequent and more vigorous vertical mowing will thin perennial ryegrass stands. The rapid germination and establishment possible with perennial ryegrass, plus its ability to tolerate close mowings, heavy traffic, and frost, make it a near ideal grass for overseeding. It can provide an excellent putting surface and has a dark green color liked by those playing golf.

None of the remaining species competes with *Poa annua* (annual bluegrass) as effectively as perennial ryegrass. *Poa trivialis* has a nice fine texture and masks the presence of *Poa annua*. *Poa trivialis* holds its color well in cold, wet winters and is not quite as competitive in the spring with bermudagrass as is perennial ryegrass. However, it has poor wear tolerance and a slow establishment rate.

Creeping bentgrass has most of the overseeding characteristics of *Poa trivialis*. However, the color of some cultivars does not allow masking of *Poa annua*. Some golfers and superintendents claim it provides a superior putting surface in the spring provided traffic is not too heavy. Both creeping bentgrass and *Poa trivialis* do better in severe cold winters than perennial ryegrass.

Both fine fescues and annual ryegrass are noted as dying too rapidly in the spring to provide a smooth transition. The annual ryegrass is the worst of the two and also has blades too coarse to provide a high-quality winter playing surface. Kentucky bluegrass is very slow to establish, but provides excellent color in cold winters and a gradual transition in the spring.

Managing the Spring Transition

Although winter management of overseeded greens may not appear an important part of spring transition, it can have a definite effect. Failure to move the hole location frequently enough, excessively high nitrogen rates, over- or under-watering, and triplex mower ring have all contributed to a loss of bermudagrass under the overseeding.

The new perennial ryegrass cultivars have changed the approach of spring management of the overseeding. In the past, bad spring transitions, most commonly referred to as "sudden death," occurred before the bermudagrass was ready to grow. Now, however, superintendents find it difficult to get rid of the overseeding crop. Failure now often refers to a choking out of the bermudagrass by the overseeding. Thus, constant thinning of the overseeding becomes a critical part of spring management.

Once bermudagrass begins to green up on areas of the golf course not overseeded, it is time to begin spring management. One of the most disastrous things superintendents can do is to avoid thinning and aerifying the overseeded greens because of upcoming spring tournaments. By failing to thin the overseeding and to aerify at the proper time, he does not allow the bermudagrass to break through and thus to regenerate itself. When the tournaments are finished and he does take the necessary steps, the bermudagrass may be too weak to adequately reestablish itself and give the desired cover.

Too rapid a removal of the overseeding in early spring is also a problem. Viable bermudagrass may be there, but cool temperatures may prevent it from providing a satisfactory putting surface. There is no sure cure for the transition blues. There are only techniques for reducing the risk of an abrupt transition.

Good aerification is an important factor in bermudagrass survival, not only in the fall, but in the spring as well. One needs to aerify overseeded areas soon after bermudagrass greenup in non-overseeded areas. The purpose of aerification is to get bermudagrass shoots up through the overseeding and warm air into the soil. One can use soil temperature as a guide. Pick a time when it is at or close to 50°.

Light, frequent verticutting may be the best tool the superintendent has to manage the spring overseeding. This needs to be done weekly in the spring and, as warm weather becomes routine, double verticutting will be in order. Verticutting, combined with close mowing and brushing, reduces the density of the overseeding and allows more light through to the bermudagrass while also creating openings through which the bermudagrass can grow.

Transition is going to occur at some time between March 15 and June 15. Exactly when it will occur one can never be sure. If one allows it to occur naturally without mechanical thinning of the overseeding, failure is almost assured. The superintendent must aid transition by holding off on nitrogen in early spring and by mechanically thinning the overseeding.

One of the more serious problems encountered by bermudagrass, when breaking dormancy in the spring, is an early spring warmup followed by a hard freeze, which kills the new shoots. This

Double trouble. A small green and an overdose of preemerge herbicide used for goosegrass control.

For a successful overseeding and spring transition, this 328 bermudagrass green was thinned a month before overseeding time.

forces the grass to send up new shoots from the rhizomes and thus reduces the food reserve still further. Individual plants may not have enough food energy to recover. Severe cold winter temperatures occasionally negate all attempts to prevent loss of bermudagrass.

Some research has shown that bermudagrass may lose all of its root system in the spring as it begins to green. Therefore, one can assume that keeping the soil moist is going to be quite critical in getting bermudagrass through stress periods as it is greening in the springtime. The practice some superintendents use of letting the greens dry to promote loss of the overseeding may actually be detrimental to bermudagrass.

During wet, cool springs, superintendents should make applications of fungicides reasonably regularly. Diseases may not be visible on the overseeded grasses, but they can be working, nevertheless, on the bermudagrass beneath. Drenching in a fungicide occasionally during long periods of cloudy, wet weather may prevent loss of bermudagrass.

The preemerge herbicides, so necessary for crabgrass and goosegrass control, may also contribute to premature loss of the overseeding and damage to the bermudagrass breaking dormancy. One needs to think twice before applying these materials and, if applying them, to be sure the rate is correct and overlapping is kept to a minimum. A slightly less than recommended rate, after aerification, followed a month later by a half rate, is an often-taken, wise approach.

Once sure that the bermudagrass base is strong and healthy, one can encourage it by fertilizing and complete the changeover rapidly. However, be sure that not only the bermudagrass is ready but that the weather is ready, too. If the weather suddenly turns cool, you may find the fertilizer encouraging the overseeding rather than the bermudagrass.

Once most of the overseeding has been eliminated, raise the height of cut slightly and topdress. This will aid bermudagrass recovery and speed the transition to a solid bermudagrass surface. The topdressing encourages stolons to root and provides a smoother putting surface.

There is no sure cure for the transition blues. Ten years ago, Holman Griffin, of the Green Section, summed it up nicely by writing, "A delicate touch is required for an easy transition. Each spring is different." Here's to your success in 1983!