

Overseeding

Healthy bermudagrass is key to successful wintergrass/summergrass transition

By Howard E. Kaerwer

Contrary to general thinking, preparation for transition from wintergrass (on southern golf greens) should begin during early summer.

Healthy bermudagrass is the key ingredient. Prepare for transition next spring by early correction of compaction problems, balancing fertility demands, and keeping thatch under control. Correct shade and drainage problems that weaken the bermudagrass. Get rid of weeds but be careful not to overdose the greens with chemicals.

DIAGNOSING

For 17 years, I have been observing Southern golf greens while developing and evaluating our Medalist overseeding formulas. Those with healthy bermudagrass have had the least problems transitioning back in the spring. These greens, in addition to a thick, green bermudagrass playing surface, will have grass with dense and deep roots plus large and numerous rhizomes. It is surprising to see how green construction and management influence the development of bermudagrass rhizomes and roots and thereby the health and quality of greens. Much of the diagnosis for correcting deficiencies can be spotted by looking below ground. Early detection is important. Little can be done to improve the situation just before the fall seeding date. No time for the bermudagrass to recover before dormancy.

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While two-thirds of the battle will be won through healthy bermudagrass, the overseeded grasses' needs cannot be forgotten. Remember, phosphorous, potassium, and micronutrients balance is a requirement. Adequate nitrogen to maintain growth, if not color, is also a requirement. However, too much residual nitrogen in the soil when spring temperatures warm can cause an excess of ryegrass growth. This causes excessive shading of the soil which in turn keeps soil temperatures lower to slow bermudagrass recovery from dormancy.

It is often stated that the overseeded grasses stay around too long in the spring. Yet many other superintendents report that they are happy to have a good putting surface for the golfers during the busy spring months, regardless of the kind of grass. It is good insurance for them. They report few golfers notice the grass they are playing on as long as the surface holds the ball, putts well, and is green. I have yet to hear adverse comments about a good putting surface. However, a green bare of grass turns golfers off in a hurry.

ORDERLY TRANSITION

Prior to 1969, when we first introduced fine textured perennial ryegrass to the overseeding market, annual ryegrass or mixtures usually including *Poa trivialis* were the basic overseeding grasses. Often overly fast transition caused disasters for superintendents and turned golfers to other courses.

The ability to maintain grass for a gradual transition was a major reason for the initial success of our Medalist II formula that year. The winter and spring of 1969-70 was a tough one and those superintendents who had switched to the then new turf-type perennial ryegrass formula had "grass" when neighboring courses were bare. The next year the demand for Medalist far exceeded the supplies and superintendents gladly began managing their spring transition. Later a trend developed to let nature take its course and let transition happen without the superintendent's help. Complaints began to be raised usually by superintendents following the unmanaged transition procedure about the ryegrass staying around too long. Yet those superintendents who continued to take the necessary steps to provide an orderly transition have usually reported good success.

Following the tough winter of 1981-82 many superintendents reported bermudagrass injury and kill. A controversy arose concerning cause. Some said the ryegrass killed the bermuda while others stated they were happy to maintain their wintergrass because their bermudagrass had winter killed.

I have been making trips across the south during March for 17 years. Inspection of bermudagrass roots and rhizomes is a standard practice for me at this time of the year. Those years when we find dead, small or off-white rhizomes are followed by poor spring transi-

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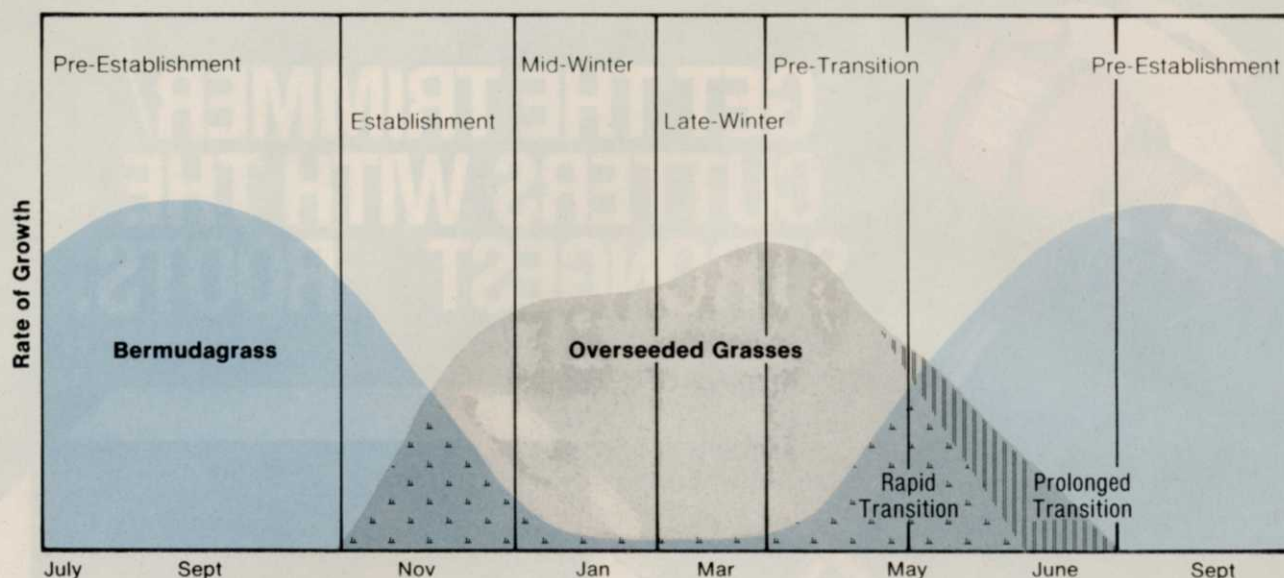


Diagram shows growth rate of Bermuda and cool season grasses, including the approximate time of transition. (Chart does not apply to southern Florida).

tion! Everyone should observe the bermudagrass below ground before it starts spring growth. Then a logical decision can be made concerning the timing of transition or the need to hold the wintergrass while the bermudagrass recovers.

What are some of the causes of poor transition? I believe soil compaction has a major effect along with cold temperatures. Soil saturation with attendant freezing and thawing is disastrous to the bermudagrass roots, rhizomes and crowns. Of course fertility imbalance, diseases, insects, and nematodes take their toll. (Again much could have been done during the previous summer to control these problems.) Management practices need to be adjusted to recognize the needs of both wintergrass and bermudagrass as well as golfing requirements. Will a tournament require early or late transition?

The decision to transition needs to be made well ahead of time to allow for the necessary management procedures. Climatic conditions may then cause some adjustments but at least the process is under way. Take advantage of the growth characteristics of the "cool season" grasses (ryegrass, fine fescue, bentgrass, bluegrass, and *Poa trivialis*) and the warm season grass (bermudagrass) to aid your transition management.

Consider how bermudagrass

differs from the cool season grasses.

We all recognize that bermudagrass likes hot weather, goes dormant when temperatures cool, and renews growth when soils warm. The cool season grasses prefer cool temperature and are stressed when soils heat into the 80's°. When this condition develops, the root system deteriorates and excess top growth develops. Carbohydrate fixation is reduced and respiration increases causing the grass to weaken. It becomes more susceptible to drought stress, diseases, wear, and bermudagrass crowding, all of which cause thinning of the cool season grass.

Once the bermudagrass had poked through the soil, it is benefited by high nitrogen applications. On the other hand, excess nitrogen will cause ryegrass and the other cool season grasses to become overly succulent causing stand thinning.

Mowing practices, too, can be used to advantage in controlling transition. A relatively tall cut in the spring will aid wintergrass to maintain deep and vigorous root systems. Short mowing reduces the capacity of the plant to fix carbohydrates and cause root dieback. Short mowing at this time aids the bermudagrass. Less shading by the wintergrass helps sunlight penetration to the soil and increases the soil temperature causing faster

bermudagrass recovery.

While the superintendent has only partial control of water availability, he can use irrigation practices to control transition. Perennial ryegrass and the other wintergrasses like adequate moisture within their root zone. Moist soil is also cooler and evapotranspiration cools the grass plants thereby keeping them healthier and more persistent. Bermudagrass also requires water. However, its root system usually is below that of the stressed ryegrass. Deeper and less frequent irrigation benefits the bermudagrass and helps it replace the wintergrass.

Here is one instance where diseases can come to the superintendent's aid. Weakened ryegrass is usually more susceptible to diseases. These help to further weaken the grass and cause it to thin. Bermudagrass, which has gone into and came through the winter in a healthy condition, usually is not subject to serious spring disease problems. To maintain an overseeded stand, use fungicides and other practices that keep the wintergrass healthy until transition is desired.

No two golf courses are the same and no two greens are identical in their performance. It is a tribute to the skill of golf course superintendents who interpret their

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courses to the benefit of the golfers and owners in an economical, yet prudent manner. While based on science, golf course management requires the art of a skilled evaluator and manager. It is not possible to "cook book" exact recommendations that will work on every course and every green. The below suggestions are to be considered as a check list for making a skillful evaluation of transition requirements.

Pretransition

(Temperatures warming. Bermudagrass not yet showing above ground.)

1. Check bermudagrass rhizomes, roots and crowns. If rhizomes are plentiful, or large diameter and white, transition should be relatively fast and easy. If dead, discolored, small and/or of limited number, expect a slow transition. Manage to maintain the wintergrass.
2. If bermudagrass O.K. begin to reduce wintergrass density. Use combs/split rollers. Regular light vertical mowing.
3. Consider aerification.
4. Fertilize as needed.

Rapid Transition

1. Begin when bermudagrass shoots show above ground.
2. Remember warm and cool season grass differences.
3. Warm soil to encourage bermudagrass.
 - a. Aerify
 - b. Frequent vertical mowing.
 - c. Reduce cutting height.
4. Mow frequently using split roller and combs.
5. Increase nitrogen.
6. Reduce irrigation frequency. Stress the wintergrass.
7. Reduce fungicide treatment.

Prolonged Transition

1. Consider cool and warm season grass requirements.
2. Keep a dense wintergrass canopy.
 - a. Do not aerify.
 - b. Restrict vertical mowing.
3. Maintain height of cut.
4. Use split rollers and combs.
5. Hold down nitrogen. Use iron for color.
6. Prevent moisture stress. Irrigate and syringe.
7. Use preventative disease practices.

Transition of greens on the superintendent's terms is possible and practical. At the same time we must recognize we are working with very complex environmental and soil interactions involving two entirely different types of grass. For these reasons, transition from one grass to the other is not always easy and exact "cook book" practices won't give results with utmost certainty. Knowledge of the grasses growth habits help.

Regardless of the grass, a good putting surface meets golfing requirements. Thinking healthy bermudagrass as well as wintergrass year-around can provide the key to success.

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