

Instant Overseeding: Coming to a Fairway Near You

Turf colorants are a capable replacement for winter ryegrass overseeding.

BY PATRICK O'BRIEN



The environmental impact of turf colorants is noteworthy because green fairways are produced using less water and fewer pesticides and fertilizers versus overseeding.

Early adopters of a technology are by nature risk takers, early risers, and people who have a great deal of patience. They are risk takers because they stand out from the crowd, for better or worse. They are early risers because they wake up early enough to be the first in line to purchase the next great thing. Finally, they have the patience to work through glitches inherent with any new tech-

nology. For those who are not early adopters, there is opportunity to sit back, evaluate, and see what happens.

In the golf industry, a type of early adopter has appeared. In the Southeast Region, a number of golf course superintendents have been the first to adopt a program that utilizes turf colorants on fairways instead of the traditional practice of winter overseeding with ryegrass. In doing so, these superinten-

dents are conserving natural resources, spending less money, enhancing the quality of their bermudagrass turf base, and delivering a product that meets customer expectations. The colorants, designed for use on turf, are applied with a traditional golf course sprayer.

As mentioned earlier, any new trend is going to have glitches and bumps along the way. Every superintendent

mentioned in this article agrees. For this reason, they continue to modify and improve the process each season. Those who are not early adopters have the opportunity to wait and learn. This article examines this trend and is designed to be a resource for those interested in testing this concept at their golf facility.

DEFINING A FEW TERMS

To ensure everyone is speaking the same language, let's define a few terms.

Colorant: This is an overarching term that includes paints, pigments, and dyes. In its simplest form, a colorant is used to change the color of the turf. There are many different colorants available for use on turfgrass, with each manufacturer creating its own proprietary formulation. For this reason, all currently available colorants are unique. In fact, researchers at North Carolina State performed a study that evaluated 12 different turf colorants in a December 2009 *Sport Turf* article entitled [Update on University Turf-Related Research Projects: North Carolina State](#) (Miller, Grady; Reynolds, Casey; Brinton, Scott; Briscoe, Kyle. 2009). Currently, Dr. Grady Miller is evaluating 27 different turf colorants with a new study that commenced in October 2011, also at North Carolina State University.

Paint: A turfgrass paint is a colorant that, when applied, coats and sticks to the outside of the plant surface. Paints are available as concentrates, which requires that they be thinned with water before applying. Turfgrass paints are not harmful to the turf when proper water dilution rates and spray volumes are used.

Pigments and Dyes: A pigment, also referred to as a dye, is an organic molecule specifically formulated to enter the plant and color it from the

inside out. In other words, the pigment stains the plant much the same way wood is colored with stain.



Playing conditions on dyed fairways are exceptional, along with enhanced aesthetics.

WHY ARE COLORANTS EMERGING NOW?

Every new trend requires a catalyst. The poor economy has motivated golf course superintendents at all levels to squeeze savings out of anything and everything without altering the quality of the product to the customer. Interestingly, colorants offer multiple advantages to the golf course compared to traditional winter ryegrass overseeding. These advantages are outlined below.

AGRONOMIC AND ECONOMIC BENEFITS

Fewer Resources: Compared to overseeding a fairway, fewer natural resources are required. Painted or dyed fairways need less water and fertilizer. Because bermudagrass is not growing, the total number of mowings per year will decrease. Fewer mowings mean less fuel consumed annually and fewer labor hours. Additionally, there will be less wear on equipment.

Fall Color Retention/Earlier Greenup: Historically, ryegrass has

been used in winter primarily for its aesthetic enhancement compared to dormant bermudagrass. Because a colorant absorbs more heat than dormant bermudagrass, color retention is held longer in the fall and spring greenup occurs earlier. This may have indirect benefits for improved wear tolerance. The amount of color retention and early greenup will vary from site to site and are dependent upon weather conditions.

Weed Control

Simplified: *Poa annua* is a common weed on southern golf courses in the winter, and it is difficult and expensive to control on bermudagrass fairways overseeded with perennial ryegrass. Conversely, superintendents have a much greater array of herbicides available, especially lower-cost herbicides, to control *Poa annua* in a non-overseeded fairway.

ENHANCING THE GOLF EXPERIENCE

Consistent Turf Color: If desired, turf colorants may be used to ensure that golfers never see dormant bermudagrass in the fairways. While dormant bermudagrass makes for a fine playing surface, there are numerous resort and destination courses in the South that host players only familiar with cool-season fairways. Invariably, when fairways are dormant, superintendents and staff must frequently respond to golfers asking, "Why are your fairways dead?"

Superior Fall Golf Conditions:

Overseeding a bermudagrass fairway in the fall will disrupt and compromise the golf experience. Disruption begins with surface preparations for seeding, followed by the seeding process itself. Frequent watering is necessary for seedling establishment and survival, which results in soil moisture levels that lead to softer surfaces that are less than ideal for playability. In short, fall golf is wet with limited ball roll. Finally, it takes months before the golf ball is actually supported by the ryegrass.

Smoother Spring Transition:

Transition from perennial ryegrass back to bermudagrass in the spring can range from smooth to disruptive. Factors such as water quality, shade, traffic, drainage, and the health of the bermudagrass base all play a role in the transition. When a colorant is used, transition is going to be earlier and more predictable because there is no overseeded turf to compete with the bermudagrass base.

ARE THERE CHALLENGES?

Although numerous benefits have been listed, nothing is perfect or even without disadvantages. It will be up to each golf facility to determine whether the advantages outweigh the disadvantages. Ultimately, the continuation of this trend will be determined by the level of golfer approval and support.

Below are several disadvantages to consider.

Wear Tolerance: There is no question that perennial ryegrass fairways have better wear tolerance in the spring than bermudagrass that is just emerging from winter dormancy. Although most of the golf courses in the Southeast that subscribe to the USGA Turf Advisory Service do not overseed fairways and have no issue with early spring bermudagrass turf quality, a golf course that shifts from overseeding to coloring may not be accustomed to spring conditions on non-overseeded bermudagrass.

Potential Loss of Color in High-Traffic Areas: Far and away, the leaf surface makes up most of the “canvas” that holds the paint or pigment. If the canvas deteriorates substantially, only stems and worn leaves will remain to

absorb and provide color. This will not look as good as bermudagrass with a full canopy of intact leaves.

Mottled Bermudagrass = Mottled Painted Bermudagrass: Some fairways are riddled with off-type bermudagrasses and/or other contaminant turf species. Such a “quilt-like” appearance stands out in the summer and will stand out just the same when painted.

Perfecting the Application

Process: Given the rise in popularity of turf colorants, the products available in the current marketplace have skyrocketed in recent years. Furthermore, there are a mind-boggling number of combinations of colorants, nozzle types, dilution rates, and sprayer configurations. In other words, patience is needed during the trial-and-error period that occurs at every golf facility.



Definition at fairway edges does not require special spray equipment. Careful boom placement over the fairway edges outlines a precise painted border.

THE ABC'S OF STARTING A PROGRAM

For those interested in testing or implementing an instant overseeding program on your fairways, this section is for you. The entire process from surface preparation to application is reviewed.

TIMING OF THE FIRST APPLICATION

Each golf facility faces a philosophical question in regard to timing. Should the colorant be applied while the leaves are still green, or should application wait until the turf goes dormant? Let's walk through each scenario.

Semi-Green Application: In this example, let's assume the average first frost date is November 15. With this in mind, the first turf colorant application would be sometime 7 to 10 days before the first frost. For the golfer, there is no significant change in color from fall to winter. An advantage with this approach is the initial application will require less product. Think of it in terms of painting a room in your house where less paint would be needed if painting a green wall a different shade of green. A potential disadvantage is if the first frost occurs much later than anticipated, actively growing and very green turf will have been painted prematurely.

Dormant Application: In this example, nature is allowed to take its course and painting does not occur until the fairways become completely dormant. The advantage of this approach is that in some southern locations the period of dormancy can vary widely, and it may be Christmas or later before a colorant is needed. The longer the turf remains green into the late fall and early winter, the fewer applications of colorant will be needed. A disadvantage with this approach is that significantly more colorant is needed initially to produce the desired color. Again, think of it in terms of house painting. It takes a great deal more green paint to paint over a white wall. Furthermore, any thin areas or misses are much more obvious.

Turfgrass Selection: Colorants will look their best on high-density turfgrass with minimal contamination because

of the increased number of leaves per square inch. Most southern golf courses have hybrid bermudagrass fairways. Popular varieties such as Tifway, TifSport, TifGrand, and Celebration are all good candidates for instant overseeding. Zoysiagrass and paspalum also provide an excellent canvas for turf colorants. Common bermudagrass varieties and off-types do not work as well because of the propensity to lose leaf tissue under traffic.

applications improves the incorporation of the colorant on the leaf tissue. Light irrigation reduces wicking of the material into the leaf surface, which is very important if a turf colorant is used. Dry turf absorbs more colorant, thereby requiring more product and applications to achieve the desired color.

PRODUCT SELECTION

Which turf colorant is the best? Simple question, difficult answer. Not only are there many, many commercially avail-



A pre-mixing tank mixes turf colorants with water and quickly fills the sprayer. Tanks can be moved to any location on the golf course to speed sprayer operations.

TURFGRASS PREPARATION

Increase the fairway height of cut by 25% to 50% starting 30 to 45 days before the first frost to increase leaf tissue area. This will increase the surface area that will be colored and will enhance wear tolerance throughout the winter.

It is important to have a clean turfgrass surface free of clippings, leaves, worm casts, or other debris prior to applying the colorant. Mowing and blowing debris from the fairways must be done immediately prior to the treatment to maximize contact of the colorant to the leaf surface. Dew should be removed before application, but light irrigation prior to colorant

able colorants, but they vary in price, initial color, color retention, and ease of handling. A given colorant will also produce different results based upon the rate used. To further complicate matters, the same colorant may look different when sprayed on dormant versus semi-dormant bermudagrass. This all leads to one simple conclusion. It is incumbent upon the superintendent to research and visit courses using colorants, or, even better, to set up trials at one's golf course.

As with any product, be sure to evaluate technical information provided by the manufacturer for things like sprayer type and settings, dilution rates, packaging, drying time, and



Totes reduce product costs compared to five-gallon containers and are handy because they allow for mobile transport and handling of turf colorants across the golf course.

propensity to rub off leaf surfaces after rewetting.

Most colorant products tend to dry within an hour after treatment on the leaf tissue with sunny skies and temperatures above 60 degrees. Overcast skies, cooler temperatures, and higher relative humidity delay the drying process. Rewetting of the turf tissue following application can cause colorants to rub off for a period of time if touched.

EQUIPMENT NEEDED

Delivering the product uniformly to the plant is the biggest challenge. Below are key pieces of equipment.

Sprayer: Traditional sprayers, either self-contained or mounted boom sprayers on utility vehicles, used to apply growth regulators, liquid nutrients, and pesticides to the fairways can also be used to apply turf colorants.

Seals: The delivery pathway for spray products goes from the spray tank to either a diaphragm or centrifugal pump, through the nozzles, and to the turfgrass plant. Seals on the centrifugal

pump are the weak link in the delivery chain. The spring-loaded ceramic/carbon seals in the centrifugal pumps are subject to heating from the constant flow of the turf colorant through the system. Once hot, the colorant tends to stick between the seals or spring. Consequently, leaks occur, especially after seals dry following operation. Replacement costs for the ceramic/carbon seals are approximately \$300 each. Fortunately, a low-cost option exists. Superintendent Rob Vaughan at Brunswick Plantation and Golf Resort in Calabash, N.C., found that the NAPA oil seal, at a cost of approximately \$5 each, works much better for turf colorants with centrifugal sprayers. He has found that one inexpensive NAPA seal has lasted over two years without leaking or needing replacement. New spray pumps are expensive (approximately \$2,000) and proper seal maintenance and upkeep are essential for spray equipment longevity.

Nozzles: Spray nozzles are a critical part of the process. They break

up the solution into properly sized droplets, meter the volume, and distribute it evenly over the turfgrass area. Nozzle screens, used with fertilizer and pesticide applications, are sometimes removed for turf colorant operations to improve delivery and reduce nozzle clogging issues.

Flat fan spray nozzles with larger tips, such as the TeeJet 8008, are most commonly used on booms because less plugging occurs. Using a quick-connect "Y" connector to apply the product using two nozzles results in a big improvement, too. One setup that has achieved good results is the TeeJet 8008 pointing toward the spray rig and the Delavan #4 flat fan pointing away from the rig. Both nozzles apply at the same rate but with different spray patterns, helping to improve coverage on leaves with less streaking. The TeeJet 8008 applies the base coat and the Delavan #4 provides the finishing coat of turf colorant all in the same pass, eliminating the need for multiple trips across the fairway.

PRODUCT HANDLING

How the product is shipped and handled on the golf course will make a big difference in the efficiency of your operation. Because colorants are sold as concentrates, mixing is required. This can be accomplished in the spray tank, a 50-gallon pre-mixing drum, or a 175-gallon prefabricated premixing tank with an agitator. A secondary consideration for product handling is the packaging of the turf colorant from the distributor. For example, some turf



Nozzle setup is important. This unique system using Delavan #4 and TeeJet 8008 flat fan nozzles with a "Y" connector provides an excellent delivery system to apply turf colorants.

colorants arrive in 250-gallon totes and others arrive in 5-gallon containers. Make sure your method of refilling the sprayer is compatible with the product container. It is an important consideration since it usually takes 12 to 15 fill-ups to spray all the fairways, depending on acreage and spray tank capacity.

EQUIPMENT CLEANUP WITH SOAPS AND CLEANERS

Allot extra time to clean the outside of the sprayer, inside the tank, and the boom/nozzles after turf colorant applications. The outside of the sprayer can especially become spotted with paints and pigments due to drift. Detergent and a high pressure cleaning machine will remove turf colorants from equipment surfaces. Filling and draining the inside of the tank with a water and detergent solution is adequate to remove any residual colorant. Remove the nozzles from the boom and soak them in a bucket with a water/detergent solution for a thorough cleaning.

HOW MANY APPLICATIONS?

There are several factors that can impact the color of treated turf and the number of applications required to achieve the desired effect.

Photodegradation: Turf colorants are sunlight sensitive, meaning the color will degrade over time. The change in color and rate of fading depends on the individual product, all other things being equal.

Temperatures: Cold temperatures will cause bermudagrass leaf tissue to turn off color. If there is uncolored bermudagrass tissue that turns from green to brown, the overall fairway color will change. Once colored to a satisfactory level, cold temperatures,

if sustained, allow for a larger spray interval due to little or no turfgrass growth. Warm temperatures will have the opposite effect. New green leaves will complement the artificially colored leaves and improve the appearance. If the turf is exposed to extended periods of warm temperatures and new growth requires mowing, some artificially colored turf will be removed along with clippings. This could be problematic and require reapplication if cold temperatures return.

Cart Traffic: If cart traffic causes a loss in leaf tissue, fairway color will change.

Because there are multiple factors impacting color retention, retreatment is best made based on the judgment of the superintendent and not according to a predetermined schedule. In Calabash, N.C., Superintendent Rob Vaughan colors his fairways an average of two to three times per year.

CONCLUSION

Every new trend has early adopters, casual observers, and critics. The use of turf colorants in lieu of overseeding has provided outstanding results for numerous golf facilities and golfers who play them. There are tangible

benefits to be realized both economically and environmentally. An attempt has been made to outline a balanced case for why this idea is receiving careful consideration. In so doing, it is hoped that you now have the necessary information to test these concepts at your facility. Stay tuned for more updates as this process continues to be more widely adopted and improved.

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