

If It's Winter, It Must Be Time to Put On a Coat (of Green Paint)

By Steven H. Long, H. Liu, L.B. McCarty, and J. A. Thackston



Photograph 1.
A pneumatic paint gun is used to apply paint in second direction of first season application.

Painting of greens has recently become the No. 1 alternative to overseeding greens for winter color.

Bermudagrass (*Cynodon dactylon*) growth stops when nighttime temperatures begin to drop below 60 degrees Fahrenheit (F). This is accompanied by discoloration of the turf when temperatures drop below 50 degrees F (McCarty, 2005) and eventually to full dormancy when frost occurs or as temperatures become lower than freezing. Superintendents in the Southern United States, therefore, often overseed bermudagrass greens to meet golfers' desire to play on green grass during winter and increase profits for their golf courses.

The most common cool-season turfgrasses overseeded into dormant bermudagrass greens are rough bluegrass (*Poa trivialis*) and perennial ryegrass (*Lolium perenne*). When an overseeding season starts, the bermudagrass is often not fully dormant yet and is still competing for water and nutrients.

Overseeding itself is disruptive for the existing bermudagrass turf as verticutting or other physical means of thinning the turf is performed to provide good seed-to-soil contact. Additionally, to provide a quality putting green, high overseeding rates are often used. These high seeding rates plus cooler spring temperatures often weaken the bermudagrass turf and potentially results in catastrophic problems

during spring transition into summer.

In severe cases, a golf course will transition from overseeded cool-season turf to severely thinned or even dead bermudagrass turf.

Other problems include increased susceptibility to various diseases and the inability to rid the overseeded grass, which then becomes a lingering noxious weed. In addition to these management problems, cost can become a problem for golf courses as well, which is between \$500 and \$2,000 per overseeded acre (McCarty, 2005).

Overseeding is viewed by many golf course managers as a necessary high-cost practice to attract and retain winter-play golfers. For all these reasons, turf professionals have sought alternatives to overseeding and discovered a potential one in the simplest of areas, painting.

The alternative

The practice of painting greens is gaining notoriety because of its inexpensiveness, attractiveness, bermudagrass health maintenance and playability.

Rodney Lingle at Memphis Country Club in Tennessee has been successfully painting Champion bermudagrass (*C. dactylon* (L.) Pers. X *C. transvaalensis* Burt-Davy) putting greens for 15 years (Carson, 2004).

When compared to high costs of overseeding, painting of golf course greens could potentially save a course significant dollars each year to be applied in other areas of required maintenance. Costs of painting greens usually range from about \$900 to \$3,000 total per season for an 18-hole golf course, depending on number of applications and price of paints (Carson, 2004).

Considering that an average 18-hole course has about three acres of greens, overseeding costs could reach upwards of \$6,000 per season, twice as much as painting.

Since the advantages of painting greens can far outweigh the disadvantages, why isn't it more widely practiced?

A main reason may be because of the lack of scientific data demonstrating its effectiveness in a golf



QUICK TIP

Look to The Andersons Advantage when using granular fungicides. Better carriers, expert formulations and years of experience all add up to dependable products you expect from The Andersons. For more information, contact your Andersons Golf Products distributor.

course situation. In addition, golfers need to be informed that painted greens are just as playable as overseeded turf. The presented study provides golfers and golf course superintendents with research results on painting golf putting greens.

The study

A two-year replicated field study is in progress at Clemson University to evaluate effects of two painting brands (Titan and Missouri Turf Paint) applied at one and/or two applications per winter season vs. a control with no paint or overseeding.

Overseeding costs can reach upwards of \$6,000 per season, twice as much as painting.

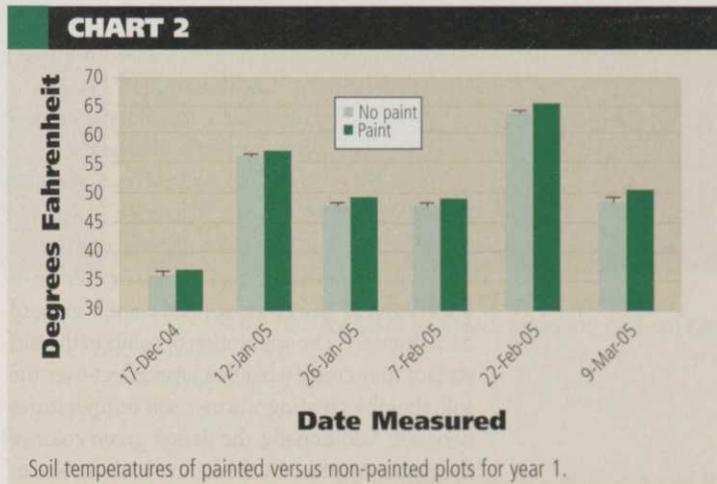
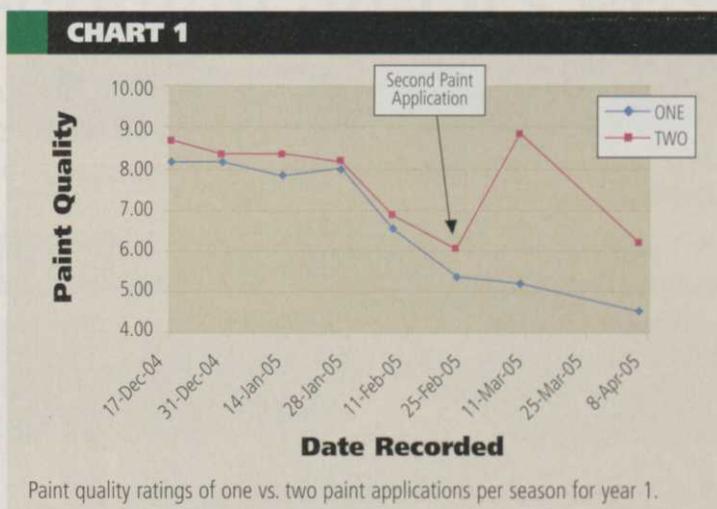
Paints were applied pneumatically with a portable air compressor and hand gun (Photograph 1). Paints were mixed at a label-recommended 10:1 ratio (water:paint). Each plot was sprayed in two directions to minimize streaking.

The study was initiated Dec. 13, 2004, on a completely dormant Champion bermudagrass putting green (Photograph 2).

Each paint brand and application rate was replicated three times. The first application of paints took place Dec. 13, 2004, and the second application followed on Feb. 23, 2005. Irrigation was applied as needed along with weekly, heavy foot traffic to obtain more realistic wearing and fading of the turf paints as observed in a golf course situation. Foot traffic was implemented by one person walking over the plot four times in alternating directions with soft-spiked golf shoes. The study will conclude in July 2006 following collection of the second year's spring green-up data.

Parameters measured include paint color quality, ball roll distance, soil temperature, spring green-up and summer turf quality. Visual paint quality (PQ) ratings were taken weekly and include color tone and fading of paints. PQ was measured on a 1 to 9 scale (1=brown turf, 7=acceptable green color, 9=dark green color).

From May through July, visual quality ratings were based on turf quality (TQ) concerning spring green-up and summer turf color. These TQ ratings were taken weekly on a scale of 1 to 9 (1=completely dormant or dead turf, 7=acceptable turf, 9=perfect stand of turf). Ball



roll distance was measured biweekly from the December painting until April when spring green-up begins using a standard Stimpmeter.

Soil temperatures at a depth of three inches (7.6 centimeters [cm]) were recorded using a digital thermometer throughout the winter months.

Data analysis

All statistical computations are being conducted using analysis of variance (ANOVA) within the Statistical Analysis System (SAS Institute, 1999). Means are being separated by Fisher's Least Significant Difference (LSD) test at an alpha level of 0.05.

Visual PQ ratings from December 2004 through April 2005 are shown in Chart 1.

Two applications per winter season provided significantly higher paint quality rating averages of 7.7 for the season vs. one application, which averaged 6.7. This was expected since

Continued on page 58



Photograph 2.
Finished first season application of paints to study plots.

Continued from page 57

paints tend to fade over certain periods because of sunlight and exposure to rain and traffic. A sharp increase in PQ in early March followed the second paint application (Chart 1).

Interestingly, no significant differences in PQ were noted between the two paint brands.

Differences in soil temperatures were also noted between treatments (Chart 2). Turf paints significantly increased soil temperatures during the winter months from an untreated average of 49.9 degrees F to a twice-applied paint average of 51.3 degrees F. The application of paints to the turf surface may create a blanket layer effect over the soil, thereby creating warmer soil temperatures beneath. Additionally, the darker green color of the painted surface vs. the lighter brown color of the untreated surface absorbs more solar radiation to further increase soil temperatures.

It was hypothesized that turf paints would reduce ball roll distance and that roll would be further impeded with repeat applications. However, differences in ball roll distance were not seen between turf paint brands or number of applications in year 1.

Titan Turf Paint and Missouri Turf Paint significantly increased spring green-up TQ of untreated from 4.4 to 5.0 and 5.3, respectively.

Additionally, twice-applied paints with TQ of 5.5 resulted in significantly higher TQ than single applications at 4.9 and untreated at 4.4. This probably resulted from the turf paints increasing soil temperatures. By increasing soil temperatures,

paint-treated plots began spring green-up earlier and thereby received a higher average TQ rating.

Shearman et. al. (2005) made similar findings where paint-treated buffalograss (*Buchloe dactyloides*) had earlier spring green-up with painted vs. nontreated buffalograss and this earlier spring green-up positively correlated to soil temperatures created by the application of turf paints.

No differences in TQ occurred between paint brands.

Preliminary conclusions

Following one year of study, we have reached the following conclusions:

- Treatments receiving once- and/or twice-applied turf paints had no negative effect on summer turf performance.
- Differences in PQ, spring green-up, ball roll and soil temperatures were not found in two selected painting brands for this study.
- The twice-applied paint treatment showed improved winter color and spring green-up compared to only painting once.
- Differences were not found in ball roll distance between painted and nonpainted plots.
- Painted treatments significantly increased soil temperatures.
- Painting has greater positive effects and no negative effects on dormant bermudagrass when compared to effects and drawbacks of overseeding.
- Painting is a safe, suitable alternative to overseeding for winter color.

Steven H. Long is a Masters candidate in turfgrass science. Dr. H. Liu is an associate professor and Dr. L.B. McCarty is a professor of horticulture specializing in turfgrass science and management. James Thackston is a Masters candidate in turfgrass science. All are located at Clemson (S.C.) University.

The authors would like to thank the Golf Course Superintendents Association of America (GCSAA) and Carolinas Golf Course Superintendents Association (CGCSA) for funding our research of winter greens painting. Additionally, we would like to thank John Graves of Missouri Turf Paint for donating Missouri Turf Paint and Mike Echols of Clemson University Athletic Department for donating Titan Turf Paint.

REFERENCES:

- Carson, T. 2004. "Overseed or paint?" *Golf Course Mgt.* 72(12): 22.
- McCarty, L.B. 2005. *Best Golf Course Management Practices*, 2nd ed. Upper Saddle River, NJ. Prentice-Hall Inc. 868p.

SAS Institute. 1999. *The SAS system for Windows*. v. 8.2. SAS Inst., Cary, NC.

- Shearman, R.C., L.A. Wit, S. Severmutlu, H. Budak, and R.E. Gaussoin. 2005. "Colorant effects on dormant buffalograss turf performance." *HortTechnology*. 15(2):244-246.