



*Dormant bermudagrass on one-half of plot and colorant on the other half.*

## *Colorants May be One Answer to Higher Seed Prices*

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**T**he natural beauty of a properly overseeded turfgrass area is beyond doubt a pleasing sight. This is especially so for the northern traveler seeking greener pastures. However, as with any worthy work of art, there is a price to be paid. To become established, the overseeded area has to undergo extensive preparation. The area has to be closely mowed and aerified and debris must be removed so that a minimum competitive but highly receptive seeding environment can be established. After that, numerous cultural tasks associated with the care and management of a productive turfgrass area must be maintained. This means that the overseeded area must be subsequently mowed, fertilized and groomed.

For the fortunate turfgrass manager whose dictates have been, "beauty at any price," and who is backed by a supporting budget, the concern for color is minimal. It narrows to the making of a proper selection from among the old and new grasses or a combination from them that would produce winter color and the desired aesthetics. However, not all producers of turfgrass areas are so fortunate. Many mana-

gers faced with a limited budget and the challenge of a warm-season grass specie that is fading into dormancy must seek alternatives.

At their request and in response to the growing need for information pertaining to the use of turfgrass colorants, a limited study on dormant Tifgreen bermudagrass was conducted. Due to the interests stimulated by the results of this initial test, the study was expanded. In the broadened study, the turfgrass colorants were applied to 20,000 square feet of dormant Tifgreen bermudagrass on the baseball outfield of the California State Polytechnic College, Pomona, Calif. Observations were thus possible under actual play. It also enabled the research to be conducted on a large randomized complete block design that was replicated four times. A 10-foot wide check area separated each replicated block and application of material to each test area treated was made with hand sprayers equipped with a size 8 flat T-jet nozzle. The pressure per square inch was constantly held at 30 pounds as indicated by the gauge on the sprayers.

The research plots were observed and evalu-

**TABLE 1. PER ACRE COSTS FOR COLORIZING DORMANT BERMUDAGRASS**

Date: February 1972

Based on: 2 Acres Golf Course Fairways  
1 Acre City Park Facility

No depreciation or interest computed;  
cost is nominal and equipment is assumed  
to exist for other purposes.

Labor: \$3.75/hr.

Operation	Annual hours	Costs		Material	Combined Total Costs per acre
		Labor	Equipment		
<b>Preparation:</b>					
Mowing <sup>1</sup>	0.2	\$0.75	\$0.80		\$1.55
Sweeper <sup>2</sup>	0.7	2.65	1.05		3.70
Helper	1.0	3.75	—		3.75
					<u>\$ 9.00</u>
<b>Cultural:</b>					
Colorized <sup>3</sup>	0.5	1.90	1.10	Colorant 8 gal. @ \$9/gal.= \$72.00	75.00
Helper	1.0	3.75	—		3.75
					<u>78.75</u>
					<u>\$87.75</u>

<sup>1</sup>A light mowing with fairway mower to provide uniformity in appearance. Operational cost of \$3.90/hr, based on 2,080 hours of annual use.

<sup>2</sup>Removal of clippings, litter and debris. Operational cost of \$1.47/hr, based on a sweeper capacity of 0.68 acre per hr.

<sup>3</sup>100 gal. tank sprayer boom equipped with dripless size 8 flat T-jet nozzles. Covers 7,000 sq. ft. in 4½ min.

**TABLE 2. PER-ACRE COSTS FOR OVERSEEDING DORMANT BERMUDAGRASS (Cyndon dactylon)**

Date: February 1972

Based on: 200 acres on golf courses  
and 5 acres of city parks.

No depreciation or interest computed as costs  
are nominal and equipment is assumed  
to exist for other purposes.

Labor: \$3.75/hr.

Operational tasks	Annual hours	Labor	Equip-ment	Material	Material Costs	Costs per acre
						Combined Total
<b>Preparation<sup>1</sup></b>						
Mow	16.0	\$60.00	\$62.40			\$122.40
Sweep	1.0	3.75	1.50			5.25
Spike	2.0	7.50	2.60			10.10
						<u>\$137.75</u>
<b>For establishment<sup>2</sup></b>						
Seeding	0.5	1.90	1.10	Seed 400 lbs. @ 10c/lb.	\$40.00	43.00
Irrigation	1.0	3.75	—	Water, 1 acre-inch	7.25	11.00
						<u>54.00</u>
<b>Following establishment<sup>3</sup></b>						
Irrigation	8.0	30.00		Water, 8 acre-inches	58.10	88.10
Fertilizer	1.0	3.75		850 lbs. 16-4-4	34.00	39.10
Mow	1.6	6.00				8.35
						<u>135.55</u>
						<u>\$327.30</u>

<sup>1</sup>Mowed with flail mower in several directions at an operational capacity of 4 hrs./acre @ \$3.90/hr.; spiked at a 2-hour-per-acre capacity @ \$1.30/hr.

<sup>2</sup>Seeding capacity 3-acres-per-hour at combined tractor and equipment cost of \$1.45/hr. For uniform seed distribution, half allotted seed spread in one direction and remainder in a direction crossing the first. The area lightly irrigated to prevent germinating seeds and seedling from drying out before becoming established.

<sup>3</sup>Based on weekly irrigation of 1-acre-inch-per-week for minimum of 8 weeks; mowed weekly during that period at capacity of 2½-acres-per-hour @ \$3.90/hr. Costs increased substantially as overseeding period extended beyond the 8-week study period.

ated for their general appearance, hue, uniformity, longevity and intensity of color. The color intensities of each test plot were rated weekly. When all treatments began to fade during one week and subsequently increased the following week the study was terminated. No further readings were taken as the flush of color indicated a regrowth of the bermudagrass.

The weekly readings, accumulated from the treatments applied at the manufacturer's recommended rate (low rate) and at twice that rate (high rate), were statistically compared. The averages were then presented and are shown by the graphic summary chart shown below.

In general a truer color and greater uniformity were obtained at the high rate. Greater color longevity was also reported at this rate. No plant injury has been observed throughout the test at either the high or the low rate for any of the colorants tested. Remarks by players using the baseball outfield indicated satisfaction. No objectionable discoloration or staining was reported either of ground balls or of player uniforms. A simulated cleaning test devised to evaluate the materials as to the ease with which equipment used in their application was cleaned, ranked the materials in the following order:

Sprayer Equipment  
Cleaning Test\*

- |                  |                |
|------------------|----------------|
| 1. Vitalon Dark  | 6. Greenzit    |
| 2. Vitalon Light | 7. Stayz-Green |
| 3. Sta-Green     | 8. Winterlawn  |
| 4. Greenstuff    | 9. Everbright  |
| 5. Vichem Green  |                |

\* Ranked from the easiest to most difficult.

A significant enlargement of the study made the following year was the accumulation of per acre cost data for the application of turfgrass colorants and that of similar areas which were overseeded. These per acre costs were made possible through the cooperation of the managers of golf and recreational park facilities. The procedures used were those normally conducted in carrying out colorant and/or overseeding tasks. Application and seeding details as well as the costs are disclosed by the tables that follow: It is cautioned that the costs presented in these tables are but guidelines and do not represent absolute costs for all facilities.

Colorant application results and the costs revealed by this study indicate that quality colorants properly applied provide monetary savings in establishing an instant green play area. Labor needs are minimal, maintenance is low and several tasks are completely eliminated in contrast to those in areas that are overseeded. However, well established and maintained areas of overseeded turfgrass have beyond doubt an appearance and color that is very appealing to many people. While costs to establish and maintain overseeded areas is greater than those for colorants, they can be budgeted.

Turfgrass managers are responsible to assure an efficient and economical operation. To fulfill that obligation, they must constantly review areas of major expense and the means and methods whereby overall costs can be reduced. This means the investigation of alternative methods. The road to follow remains the decision of the turfgrass manager as dictated by his own judgment, the demands of the users of the turfgrass area and those who impose and enforce budget limitations.

Summary of Color Intensity at Low and High Rates

