INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
UNIVERSITY OF FLORIDA

FLORIDA COOPERATIVE EXTENSION SERVICE

GOLF TURF NEWS

BRUCE J. AUGUSTIN
Extension Turf & Water Specialist
AREC Ft. Lauderdale

CHARLES H. PEACOCK
Extension Turf Specialist
Gainesville

A Comparison Of Overseeding Management Techniques

Putting greens in Florida are overseeded during the winter months to provide a contrast in color, to improve the playing surface, and to provide a medium for wear and minimize damage to dormant turf. Ward et al. (4) documented that topdressing the overseeding improved the speed of emergence, stand density, uniformity, and putting quality as determined by visual observation, especially where thatch was present. Schmidt (3) concluded that topdressing after seeding was an important step in the overseeding procedures. Recent trends have been away from topdressing and in many instances no vertical mowing. Many golf course superintendents are reluctant to disrupt the playing surface since they feel this affects playing quality of the putting green. Powell (1) noted that many people believe topdressing is necessary while others see no significant affect from this practice. Without adequate seedbed preparation it is difficult to establish the cool-season overseeding and ensure a uniform stand of cool-season grass when the warm-season grass goes dormant.

A study was conducted at the University of Florida Turfgrass Field Laboratory, Gainesville, FL from 10 November 1982 to 24 March 1983 to evaluate overseeding techniques on turf establishment and quality and the influence of overseeding techniques on golf ball roll.

Methods and Materials

The study was performed on a 'Tifgreen' bermudagrass putting green. Plots 2 x 5 m were overseeded with 'Delray' perennial ryegrass at the rate of 150 g of seed/m^2 in 4 replications. Preparation of the bermudagrass seedbed was divided into 6 establishment treatments as follows:

1.) No preparation = Seeding + brushing. (A stiff broom was used to brush the seed and/or topdressing material down into the turf instead of dragging with a steel mat due to small plot size.)

2.) Scalping = Low mowing a 3 mm + seeding + brushing.

3.) Verticut = vertical mowing with a 2.5 cm blade spacing twice over, the second moving at 90° to the first + seeding + brushing.

4.) Scalp and verticut = Scalping + vertical mowing + seeding + brushing.

5.) Verticut and topdress = Scalping + vertical mowing + seeding + brushing + topdressing (Topdressing with 1.5-3 mm of sertilized native topsoil) + brushing.

6.) Sandwich = Scalping + vertical mowing + topdressing + brushing + seeding + brushing + topdressing + brushing.

Mowing was withheld for 3 days following seeding then begun on a 3 times per week basis at a 6 mm mowing height. Irrigation was 3 times per day with approximately 2 mm of water for the first 5 days, daily applications at 6 mm through the second week, and every other day thereafter to match seasonal evapotranspiration rates. A 16-1.6-6.7 (N-P-K) fertilizer was applied 2 wk after overseeding and monthly thereafter at the rate of 5 g N/m^2. Data collection included visual estimates of percent cover and turf quality weekly during November and monthly through March.

In order to evaluate the effect of each establishment treatment on golf ball roll during the transition period, data were taken with a United States Golf Association (USGA) stimpmeter. Based on USGA Green Section recommendations, 3 golf ball rolls in each direction were performed on the flat portion of the plots in a north-south orientation and distances were measured (2).

Results and Discussion

Ratings on percent cover during the entire study period are presented in Table 1. The best treatments at the first cover rating on 17 November were those which had been topdressed. These plots had 4 to 5 times more turf cover than any other treatments. How rapid the cool-season grass becomes established is especially important in making a smooth transition from warm-season to cool-season turf. Topdressed treatments still had almost twice as much cover as any other treatment at the second week evaluation. On 29 November the best treatments were those topdressed, although statistically they were not dif-

(Continued on page 51)

[1]Florida Agricultural Experiment Stations Journal Series No. 5126.

Table 1. Visual estimates of the effect of overseeding establishment treatments on percent turfgrass cover.[z]

Overseeding treatment	11/17	11/22	11/29	12/6	12/20	12/27	1/24	2/24	3/24	Mean
No preparation	9 b[y]	46 b	73 ab	87 ab	82 a	83 ab	90 abc	94 b	97 a	79 b
Scalp	7 b	46 b	70 b	82 b	75 a	78 b	85 c	90 b	94 a	75 b
Verticut	12 b	49 b	79 ab	89 ab	78 a	82 ab	90 bc	94 b	96 a	80 b
Scalp & verticut	10 b	46 b	70 b	81 b	75 a	78 b	86 c	90 b	94 a	75 b
Verticut & topdress	57 a	85 a	92 ab	97 a	87 a	90 ab	96 ab	98 a	98 a	92 a
Sandwich	58 a	89 a	94 a	97 a	90 a	91 a	97 a	98 a	98 a	93 a

[z]Percent cover from 0-100 as visual rating.
[y]Mean separation in columns by the Waller-Duncan k-ratio t-test, 5% level. Angular transformation was performed for statistical analyses.

Table 2. Visual estimates of the effects of overseeding establishment treatments on turf quality.[z]

Overseeding treatment	11/22	11/29	12/6	12/20	12/28	1/24	2/24	3/24	Mean
No preparation	4.7 b[y]	6.0 ab	7.3 ab	6.3 bc	6.3 ab	7.3 b	7.7 b	8.3 a	7.1 b
Scalp	4.3 b	5.7 b	6.7 b	6.0 c	6.0 b	7.0 b	7.0 b	7.7 a	6.6 b
Verticut	5.0 b	6.3 ab	7.3 ab	7.0 ab	7.0 ab	7.7 b	7.7 b	7.3 a	7.1 b
Scalp & verticut	4.3 b	5.7 b	6.7 b	6.3 bc	6.7 ab	7.0 b	7.3 b	7.7 a	6.7 b
Verticut & topdress	7.0 a	7.0 ab	8.3 ab	7.3 a	7.7 a	8.7 a	9.0 a	8.3 a	8.1 a
Sandwich	7.7 a	7.7 a	8.7 a	7.3 a	7.7 a	8.7 a	9.0 a	8.0 a	8.3 a

[z]Quality as visual ratings from 1-9, 9 = best.
[y]Mean separation in columns by the Waller-Duncan k-ratio t-test, 5% level.

(Continued from page 50)

ferent from the no preparation or verticut treatments. Thus, only at 3 wk after overseeding was there equivalent cover on plots not receiving topdressing as part of the treatment. Similar trends were noted throughout the experiment period until the last evaluation on 24 March. Averaged over the study period, topdressed plots had higher percent cover ratings.

Turf quality ratings, which subjectively combine color, texture, density, and uniformity, closely followed the percent cover ratings (Table 2). Turf quality was greatly improved by topdressing at the first evaluation on 22 November and was consistently higher for the topdressed treatments through November although there was no difference between topdressed plots and the no preparation or verticut treatments on 29 November. Evaluations during the remainder of the study indicate that topdressed plots had high turf quality ratings.

Ball roll data taken 10 days following overseeding indicated the sandwich treatment in the north direction had a lower length of roll (Table 3). The mean over both directions indicated no differences in ball roll lengths among treatments. Thus topdressing did not significantly slow ball roll. According to USGA Green Section standards experimental treatments would rate in the medium-slow ball roll category. This can be attributed to the stage of transition of the overseeding and partially due to the 6 mm mowing height. But overall turf quality on the topdressed plots was excellent even though temperatures were higher than average through December and some bermudagrass growth persisted almost until January.

Table 3. Measurements of the effect of various overseeding establishment treatments on golf ball roll.

Overseeding treatment	Ball Roll Lengths[z]		
	North	South	Mean
	.....cm.....		
No preparation	183 a[y]	183 a	173 a
Scalp	173 ab	170 a	173 a
Verticut	168 ab	163 a	165 a
Scalp & verticut	168 ab	165 a	168 a
Scalp & verticut & topdress	165 ab	160 a	163 a
Sandwich	155 b	163 a	163 a

[z]Mean of 3 rolls using USGA Stimpmeter.
[y]Mean separation in columns by the Waller-Duncan k-ratio t-test, 5% level.

Conclusions

Topdressing after seeding or sandwiching the seed between 2 layers of topdressing produced the highest percent cover and best turf quality during the initial establishment period. One week following overseeding, topdressed plots had 4 to 5 times more turf cover than any other treatment. This advantage in germination rate persisted for the first month. Percent cover ratings were not different between the single topdressed and double topdressed (sandwich) plots. Thus there appears to be no benefit from the added work of double topdressing or sandwiching the seed. Ball roll data indicated no differences among treatments at 10 days after overseeding. Therefore topdressing after seeding benefited seedling establishment without notable affects on ball roll performance.

Literature Cited

1. Powell, L. C., Jr. 1982. Winter overseeding. Golf Course Management 50(8):18-34.
2. Radko, A. M. 1980. The USGA stimpmeter for measuring the speed of putting greens. *In*: J. B. Beard (ed.). Proc. 3rd Intern. Turfgrass Res. Conf., Munich, West Germany. July, 1977. Amer. Soc. Agron. and Intern. Turfgrass Soc.
3. Schmidt, R. E. 1970. Overseeding cool-season turfgrasses on dormant bermudagrass for winter turf. *In*: Proc. 1st Intern. Turfgrass Res. Conf., Harrogate, England. July 1969. Sports Turf Res. Inst. and the Intern. Turfgrass Soc.
4. Ward, C. Y., E. C. McWhirter, and W. R. Thompson, Jr. 1974. Evaluation of cool-season turf species and planting techniques for overseeding bermudagrass golf greens. *In*: E. C. Roberts (ed.). Proc. 2nd Intern. Turfgrass Res. Conf., Blacksburg, Virginia. June, 1973. Amer. Soc. Agron. and Intern. Turfgrass Soc.