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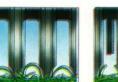
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Bentgrass in Florida

This article is a summary of the "Bentgrass in Florida" seminar which was held in West Palm Beach, Florida on October 8, 1987, at the JDM, Country Club (Mr. Carl McKinney, Superintendent). The seminar was sponsored by the Florida Golf Course Superintendents Associatioan and was coordinated by Mr. Tom Burrows, CGCS, Turtle Creek Country Club, Tequesta, Florida. Dr. Paul M. Alexander, Golf Technology Department, Horry-Georgetown Technical College, Conway, South Carolina, assisted in the development of the Bentgrass survey questionnaire and was responsible for the compilation of responses (see below).

The purpose of the seminar was to provide an open forum for the discussion of the facts and fallacies concerning the use of Bentgrass on Florida golf courses. Moderator for the day long session was Dr. Max Brown, turf consultant. Audience participation along with superintendent panelists and invited guest speakers, was encouraged to insure coverage of the issues at hand. The superintendent panelists and guest speakers included:

SUPERINTENDENT PANELISTS:

Buddy Carmouche, CGCS, has been a golf course superintendent for 15 years and is now superintendent at Hole-In-The-Wall GC, Naples. He has a B.A. in Education from Nichols State University and as A.S. in Golf Operations from Lake City Jr. College.

Paul Crawford has been superintendent of Palm Beach CC for the past 8 years. Prior to that he spent two years at Jupiter Hills CC, Jupiter. He holds an A.S. degree in Turf Management from Michigan State University.

Richard Herr has been superintendent at Jupiter Hills CC for the past 7 years. Prior to that he was Pro-Superintendent for 15 years at Rolling Hills in Logansport, Indiana.

John Lapikas has spent 8 years as superintendent of Annandale CC, Jackson, Mississippi, where he hosted the 1986 USGA Mid-Amateur Tournament. Prior to that, (cont. on page 56)



(cont. from page 55)

he was superintendent of Lost Tree Club, West Palm Beach, for 3 years. He has an A.S. degree in Turf Management from Penn State University.

Luke Majorki has been superintendent at PGA National GC, Palm Beach Gardens, for the past 5 years after having served 4 years as assistant superintendent there. Prior to that he was Owner/Pro/Superintendent in Decatur, Indiana from 1957-1979.

George Ord, CGCS, has been superintendent of Pipers Landing and Harbour Ridge CC in Stuart since 1981. Prior to 1981, George served as superintendent for private country clubs in the Pennsylvania area for 21 years.

Dick Berbeten is presently superintendent at Isleworth G & C C, Orlando. Prior to that he served as superintendent at three separate clubs in the Wisconsin area. He received his education at the University of Wisconsin.

Tom Werner is presently superintendent at The Loxahatchee Club of Jupiter. Prior to moving to Florida, Tom served as superintendent at Lochinvar GC, Houston, and Colonial CC, Ft. Worth. He holds a B.S. in Agronomy from Texas A&M University.

TURFGRASS SPECIALISTS:

Paul Alexander, Ph.D., is presently Professor of Golf Course Technonogy at Georgetown Tech College, Conway, S.C. He received his B.S. at California State Poly-



technic College, and his M.S. and Ph.D. from Ohio State University. For 10 years Dr. Alexander was a Research Pathologist at Clemson University. he has also held positions with the USGA Greens Section, been Director of Education for the GCSAA, and spent 5 years as Training Director for ChemLawn Corporation, Atlanta.

Warren Bidwell has been a golf course superintendent for 51 years. He spent 33 years as superintendent in the Cincinnati area. He served at the Congressional Club in Washington, D.C., and also the Olympia Fields Club in Chicago. He has hosted several major PGA tournaments and is highly respected for his working knowledge of his profession. Mr. Bidwell currently serves as International Consultant for Tee-2-Green Corporation, Oregon.

Max A. Brown, Ph.D., has a B.S. degree in agronomy from Iowa State Unitersity. He earned his Master of Science in turfgrass management and a Ph.D. in soil chemistry from the University of Florida. He was an agronomist for eight years with Robert Trent Jones, Inc. as well as a research chemist for National Fertilizer Development Center, TVA. He was the 1982 recipient of the Florida Turfgrass Association "Wreath of Grass" Award and is now serving as President of that association. He is currently a Consulting Turfgrass Agronomist and President of Liquid Ag Systems, Inc.

Joe Duich, Ph.D., received his B.S., M.S., and Ph.D. from Penn State University. He has been a Professor of Turfgrass Sciences at Penn State since 1967. His research accomplishments include the development of Penn Cross Bent, Penn Eagle and Penn Links Bentgrass, as well as Penn Star Bluegrass, Penn Fine Ryegrass, and Penn Lawn Fescue. He has received the Distinguished Service Award from the Golf Course Superintendents Association of America, the Outstanding Service Award form the USGA Greens Section, the Service Award from Pennsylvania Turfgrass Council, and is listed in Who's Who in the East and Who's Who in Technology Today. HeisaDirectoroftheMusserTurfgrassFoundation and received a Fellowship from the American Society of Advanced Sciences.

Robert A. Dunn, Ph.D., has served as extension nematologist for the Institute of Food and Agricultural Sciences for the University of Florida since 1975. Many of his research activities have been directed toward improved diagnosis and management of nematode problems. He earned his Ph.D. from Cornell University.

John Foy has been USGA Greens Section Agronomist for South Florida for the past 2 years. He received his B.S. in Turf Management and his M.S. in Plant Protection and Pest Management from UGA. He spent 3 years in private industry field research and development.

T.E. Freeman, Ph.D., is professor of Plant Pathology at the University of Florida. He joined the institution after receiving his Ph.D. degree from Louisiana State University in 1956. Most of his professional career has been spent studying the cause, factors affecting occurrence, and control of disease affecting grasses in the southern United States. He is the 1985 recipient of the Florida Turfgrass Association "Wreath of Grass' Award and is (cont. on page 57)

(cont. from page 56)

presently serving as coordinator of the turf research program at the University of Florida.

Monica Juhnke, Ph.D., is an Assistant Professor of Plant Pathology for IFAS for the University of Florida in the Ft. Lauderdale Research and Education Center. Her research interests include the development of biological control agents via bacterial colonizers of grass roots. She received her M.S. and Ph.D. from Montana State University.

Jeff Krans, Ph.D., has been teaching Turfgrass Management at Mississippi State University for the past 15 years. He earned his Ph.D. from Michigan State University. His current research is on plant breeding activity in heat tolerance of creeping bentgrass.

Charles Peacock, Ph.D., is currently Associate Professor of Turfgrass Science at North Carolina State University. His research interests are in the area of turf nutrition and stress physiology. Prior to moving to North Carolina, he was Senior Agronomist with Nutri-Turf, Inc., and Associate Professor in the Ornamental Horticulture Department at the University of Florida for 5 years. He has published over 130 research and popular articles on turfgrass management and given over 140 presentations at workshops, seminars, and short courses.

J.M. Vargas, Jr., Ph.D., has been a Professor of Botany and Plant Pathology at Michigan State University for the past 19 years. He has published over 150 articles on turfgrass diseases and related subjects. His research accomplishments include the discovery of the first bacterial disease of turf, the first resistance to turfgrass fungicides, and the cause of the black layer.

Charles "Bud" White is currently an Agronomist with Lesco, Inc. Prior to that he served the USGA for 8 years as Manager of the entire Southeastern United States area including Florida. He received his B.S. from Tennessee Tech and his M.S. in Turf Management from Clemson. He is a Certified Professional Agronomist.

Following his introductory remarks, Mr. Burrows announced the attendance figure of 107 persons which included 70 superintendents, 8 club officials, 9 technical/ sales representatives, 15 turf specialists, and 5 press/staff personnel. GCSAA certified superintendents received credit for attending this seminar.

Moderator Brown: Dr. Alexander will now present the results of the Bentgrass survey questionnaire. (75 had been mailed and 40 responses were received and comiled).

Question #1 — In which month do you overseed Bermuda greens with Bentgrass? Ranged from September to January (if split applications included); for non-split applications (17 total), months were:

September	-	1 (4.5	%)	
October	-	11 (50.0	%) >	90.9%
November	-	9 (40.9	%)	
December	-	1 (4.5	%)	

(cont. on page 58)

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(cont. from page 57)

Question #2 - Do you split overseeding applications?

Yes	-	22	(55.0%)	Months of applicati	on:
No	-	17	(42.5%)	Earliest - Septem	ıber
All Bent	-	1	(2.5%)	Latest - Janu	lary

Types of Splits (1 person stated 3 or 4)

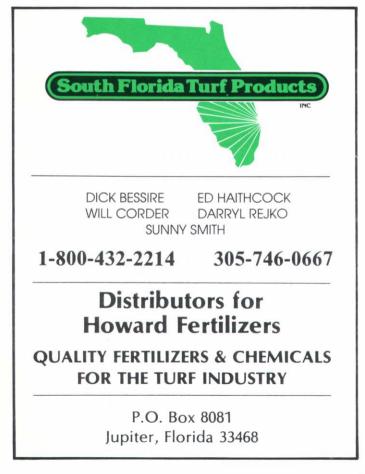
2 applications	-	13	(56.5%)	Ranged from $1\frac{1}{2} + 1\frac{1}{2}$ to
3 applications	-	7	(30.4%)	3 + 3 + 4 to
4 applications	-	3	(13.0%)	2 + 2 + 2 + 2

Non-Split Rates

3	lbs.	-	3	(17.6%)	Earliest	-	September
5	lbs.	-	3	(29.4%)	Latest	-	December
53/4	lbs.	-	1	(5.9%)			
6	lbs.	-	1	(5.9%)			
7	lbs.	-	1	(5.9%)			
8	lbs.	-	1	(5.9%)			
10	lbs.	-	1	(5.9%)			
3 to 4	lbs.	-	1	(5.9%)			
3 to 5	lbs.	-	1	(5.9%)			
4 to 5	lbs.	-	1	(5.9%)			
4 to 6	lbs.	-	1	(5.9%)			

Question #3 - Procedures used in overseeding?

Vertical Mowing (1 to 7 times)	-	34	(27.6%)
Reduce Nitrogen	-	24	(19.5%)
Topdress (1 to 3 times)	-	21	(17.1%)
Scalp with Mower	-	12	(9.8%)



Apply Fungicides	-	10	(8.1%)
Spike (1 to 4 times)	-	6	(4.9%)
Brush, Mat or Drag	-	5	(4.1%)
Fertilize (High P and/or K)	-	4	(3.2%)
Aerify	-	4	(3.2%)
Apply Herbicide	-	1	(0.8%)
Apply Insecticide	-	1	(0.8%)
Apply Nematicide	-	1	(0.8%)

Question #4 — Mowing height/frequency?

Cool Weather	Summer Months		
Height Range - 3/8" down to 3/32"	5/16" down to 1/8"		
Frequency - 6 to 7 days/week	6 to 7 days/week		

Several respondents mentioned that walk mowing was done during peak play periods and/or during times of turf stress (cold/heat/drought). In addition, use of daily clean-up cut around perimeter of green was restricted to good growing conditions only.

Question #5 — Major problems with Bentgrass?

Competition from Bermudagrass	-	13	(11.8%)
Slow/Poor Establishment of Bent	-	11	(10.0%)
Pythium/Other Diseases	-	10	(9.1%)
Poor/Restricted/No Drainage	-	10	(9.1%)
High Fall Temperatures	-	9	(8.2%)
Wilt/Syringing Needs	-	9	(8.2%)
High Summer Temperature	-	8	(7.3%)
Poor Transition in Fall, Spring	-	8	(7.3%)
Traffic Wear/Ball Marks	-	7	(6.4%)
Labor/Chemical Costs	-	5	(4.6%)
Member Demands/Education	-	4	(3.6%)
Slow Healing of Damage	-	3	(2.7%)
Lack of Sleep/Supt. Stress	-	3	(2.7%)
Small Greens	-	2	(1.8%)
Loss of Bent	-	2	(1.8%)
Percolation Rate too High	-	2	(1.8%)
Humidity/Drought Stress	-	2	(1.8%)
Poor Crew Morale	-	1	(0.9%)
Bentgrass Not Adapted to Fla.	-	1	(0.9%)

Question #6 - Do you close your course during overseeding?

Yes	-	30	(75.0%)
No	-	7	(17.5%)
Not Stated	-	3	(7.5%)

For how long?

1 Day	-	15	(50.0%)	9 Days	-	1	(3.3%)
2 Days	-	4	(13.3%)	10 Days	-	1	(3.3%)
3 Days	-	2	(6.7%)	14 Days	-	3	(10.0%)
5 Days	-	1	(3.3%)	30 Days	-	1	(3.3%)
7 Days	-	2	(6.7%)				

Question #7 — Number of rounds per year?

Up to 10,000	-	4	(10.0%)	
10,001 - 20,000	-	4	(10.0%)	
20,001 - 30,000	-	11	(27.5%)	
30,001 - 40,000	-	6	(15.0%)	
			a	

(cont. on page 59)

(cont. from page 58)

40,001 - 50,000	-	4	(10.0%)
50,000 +	-		(5.0%)
Not Stated	-		(20.0%)
"Too Many"	-	1	(2.55)

Question #8 — Who made decision to use Bentgrass?

Superintendent	-	16	(40.0%)
Club Officials	-	10	(25.0%)
Owner(s)	-	6	(15.0%)
Joint Decision	-	5	(12.5%)
Developer	-	1	(2.5%)
LPGA	-	1	(2.5%)
Not Stated	-	1	(2.5%)

Question #9 — Is there an alternative to Bentgrass? (Multiple Answers)

Do Not Overseed	-	11	(25.0%)
Cool-Season Mixture	-	8	(18.2%)
Rye/Rye Only Mixes	-	7	(15.9%)
No Alternative	-	7	(15.9%)
Not Stated	-	6	(13.6%)
Install USGA Greens	-	2	(4.5%)
Heat/Humidity Tolerant Bent	-		(4.5%)
Educate Members	-	1	(2.3%)

Question #10 — Would you continue use of Bentgrass at your course?

Yes	-	28	(66.7%)
No	-	10	(23.8%)
Not Stated	-	3	(7.1%)
Only in Mix	-	1	(2.4%)

Additional Comments by Respondents

- 1. If Bent meant for Florida, would snow every winter.
- 2. I don't mess with Bent after mid-May/early June.
- 3. Golfers should adjust to course not vice versa.
- 4. Use Bent in Fall/Winter/Spring only' Bermuda in summer.
- 5. South Florida needs a cold hardy Bermuda.
- 6. Must have good drainage and large greens for Bent.
- 7. Drainage is key to holding Bent in Summer.
- 8. Bermuda is badly damaged by holding Bent in June/ July/August.
- 9. There is no acceptable alternative to Bent.
- 10. Costs too much to maintain Bent all year.
- 11. Use a Bent/Sabre mixture on Bermuda greens.
- 12. Wish the Bentgrass "syndrome" had never started; too many players comparing courses without know-

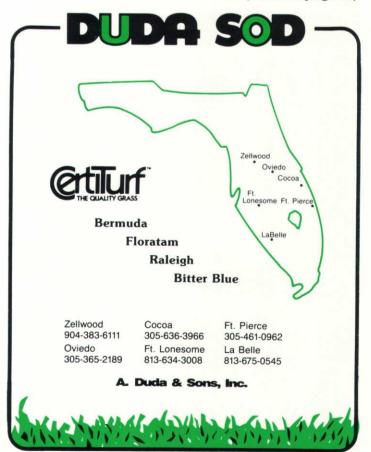
ledge of budgets, manpower, drainage, etc.

- 13. I may not overseed with bent in future.
- 14. Use Bentgrass only if members/management understand problems.
- 15. Bentgrass results do not justify inconvenience/ expense.

IF BENT MEANT FOR FLORIDA — IT WOULD SNOW EVERY YEAR. BENTGRASS RESULTS DO NOT JUSTIFY INCONVENIENCE/ EXPENSE.

Moderator Brown: Now we know what everyone out here thinks. We have three ways that Bentgrass is handled: (1) Overseeding of Bermudagrass greens with Bentgrass just for winter play which is the typical way it has been done, (2) Holding Bentgrass through the summer, and (3) 100% Bentgrass greens for all year round play in Florida. We have a panel of experts up here and we are going to hear from each of these superintendents giving them 5 minutes apiece.

We are going to start with "Overseeding of Bermudagrass greens with Bentgrass for winter play" and we will be hearing from 3 people who do this. We are starting (cont. on page 60)



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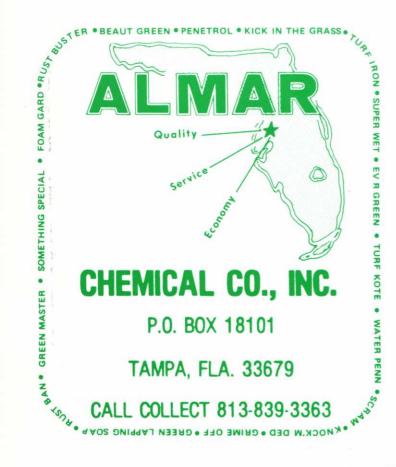
with Buddy Carmouche, Hole-in-the-Wall Club in Naples.

Mr. Carmouche (Summary): Has been overseeding with Bentgrass/Sabre combination for 7 years at 3 different courses. Success rate has been good, except for 2 years because of weather factors. At Hole-in-the-Wall, greens are small and play is slight during the winter. Found best overseeding time to be around Thanksgiving week and does not use split overseeding. Feels that it is cheaper to maintain Bentgrass because of reduced nitrogen levels and less watering once the Bentgrass is established. Firmly believes in hand watering of Bentgrass greens rather than relying on the irrigation system. All greens are hand mowed on a year round basis.

Moderator Brown: Our next speaker on the same subject is Paul Crawford from Palm Beach Country Club.

Mr. Crawford (Summary): Thinks that Bentgrass provides the best winter putting surface and his course has been using Bentgrass for the past 13 years. Overseeds with straight Bentgrass in early November at 3 to 4 pounds per 1,000 square feet (applied in two directions) and ensures good seed-to-soil contact with topdressing. Reduces nitrogen rate 30 days prior to overseeding to reduce competition from Bermuda. Vertical mows from 1 to 5 times, but no longer scalps with mowers. Forces Bentgrass out in April or May and maintains the Bermudagrass during the heat of the summer (very little play on his course during this time).

Moderator Brown: Our last speaker on the same subject is George Ord from Harbour Ridge in Stuart.



Mr. Ord (Summary): Has been overseeding with Penncross Bentgrass since 1984 and feels that it provides the best possible winter putting surface at this point in time. Preparation includes: (1) No fertilization one month prior to seeding; (2) vertical mowing is done just prior to seeding; (3) uses Bentgrass at 2 pounds per 1,000 square feet, then topdresses and mats in with a carpet-covered mat. Preventive fungicides are used after germination and throughout the season. Three to four weeks, the process is repeated, except that vertical mowing is eliminated. Although basically pleased with result, feels that slow growing-in period (about 2 months) is a drawback. Stated that he believes research is necessary to improve the overall situation and that superintendents need to support such research efforts.

FIRMLY BELIEVES IN HAND WATERING OF BENTGRASS GREENS RATHER THAN RELYING ON THE IRRIGATION SYSTEM. ALL GREENS ARE HAND MOWED ON A YEAR ROUND BASIS: Buddy Carmouche.

Moderator Brown: Now we proceed to the next area of interest which is "Holding the overseeded Bent through the summer months." You can have Bent for 12 months with a Bermudagrass base under it. We have a couple of men with loads of experience in this area, and our first one is Richard Herr, of Jupiter Hills CC.

Mr. Herr (Summary): In spite of 95-100°F weather in 1987, feels that his Penncross Bentgrass held up well and that he may not have to re-seed this fall. Admitted to both mental and physical strain during the summer stress period, but feels that the effort was worthwhile. Stressed the point that much more support from Florida universities is badly needed. He relied on information from other universities. One of his two courses — The Village — has not had to be re-seeded for 3 years, but the Hills Course is done every fall after heavy vertical mowing.

STRESSED THE POINT THAT MUCH MORE SUPPORT FROM FLORIDA UNIVERSITIES IS BADLY NEEDED: Richard Herr.

Moderator Brown: Thank you, Dick. These two people — Dick and Luke — for those of you who may have been out of state, out of the country, or slept through the summer — had two major tournaments at their two golf courses during this difficult summer. Both golf courses had a good amount of Bentgrass on the greens. So, our next speaker is Luke Majorki of PGA National GC.

Mr. Majorki (Summary): Does not feel that Tifgreen (328) Bermuda supports the ball well enough on putting surfaces for tournament play. Since he hosts about 1200-1400 golf professionals on his 4 courses during January and February of each year, the decision was made to hold the Bentgrass all year long — at least in the range of 30 to 40 percent. By doing so, he feels that he has a "head start" on having good Bentgrass greens for his tournament season which usually starts in November. Also (cont. on page 61)