

A successful fairway conversion program

by Richard Bator

This is the second of two articles dealing with the conversion of fairways from Poa to Bentgrass at the Merion Golf Club in Ardmore, Pennsylvania, during the 1990 golf season while I was golf course superintendent. (*Editor's note: See the June issue for the first article.*)

This article and its accompanying field tips deal with the 16-step procedure, the equipment, and the corresponding staff assignments. I will say what I would do differently to improve the procedure. I will also outline what procedures are needed to be substituted, if one is to successfully convert from Bermuda-Ryegrass to Bentgrass in the transition zone.

To repeat: nothing new under the sun

As I said earlier, my ways of doing this are not new, different or necessarily better than another superintendent's, but for me they were successful. Any program can be improved upon and it is my hope that anyone who reads about my experience and who undertakes such a program will seek a better way to fit his needs and his course. As a matter of fact, I would like to hear from other superintendents about the methods they have employed. (*Editor's*



Scalping the fairway.

Photo by Rick Holanda

note: please send comments to Turf Grass Trends.)

Finally, one other point to be repeated from last month is that 100% Poa control will not be attained. But, with a good initial conversion program and a fine-tuned Bent management program, there is no reason why an 80% to 95% Bent population cannot be achieved in the long term.

In the first of this two-part series, I stressed the ways to first sell the program and, secondly, the importance of

Field tips

The 16 steps

- 1st step: Scheduled closing of the course, Aug. 6-10, and a rain date of Aug. 13-17
- 2nd step: Apply Scotts Starter fertilizer seven days before, July 30-31, at a rate of 1 lb. Nitrogen/1000. Make the second application three to four weeks later at a rate of 3/4 lb. N/1000. Continue each month until December.
- 3rd step: Apply Subdue and Manzate as weather dictates, July 29-30, seven to 10 days prior to Aug. 6. Apply Subdue at the rate 1 1/2 oz./1000 and Manzate at the rate of 6 oz./1000.
- 4th step: Apply Embark five days before first slicing, Aug. 1, at a rate of 6 oz. product per acre in 30 to 50 gallons water per acre. Don't water this in. Obtain a special applicator for collars and approaches.
- 5th step: Shock mow fairways at 1/4" on the day of slicing. Dump clippings in a dump truck. Mow one fairway at a time. We used three Jake Triplexes.

- 6th step: Don't shut off the water. Use normal syringe and automatic watering practices. Some fairway turf, especially new enlargements, can be allowed to die back to facilitate a better turf catch in these areas.

- 7th step: Slice in three directions. We used a Jacobsen 548 Slicer without a seeder box. The depth should be no more than 1/2" to 3/4". Slice collars and approaches in two directions. We used a Jacobsen 524 Slicer with medium blades, two available. Shock mow collars and approaches at 3/16" on Aug. 6.

- 8th step: Aerify in four directions. We used a Tara fairway aerifier without weight trays. We aerified the collars and approaches using 1/2" tines at higher depths. We cut off 1" of tine using a Toro aerifier.

- 9th step: Overseed the fairways. We used a Scotts 10' Drop Spreader in two directions at 3/4 lb./1000 in each direction. It was thus a total of 1 1/2 lbs./1000. On the collars and approaches we used a Scotts 3' Drop Spreader in two directions at same rates as on the fairways. We used Penncross Bent at a rate of 3/4 lb./

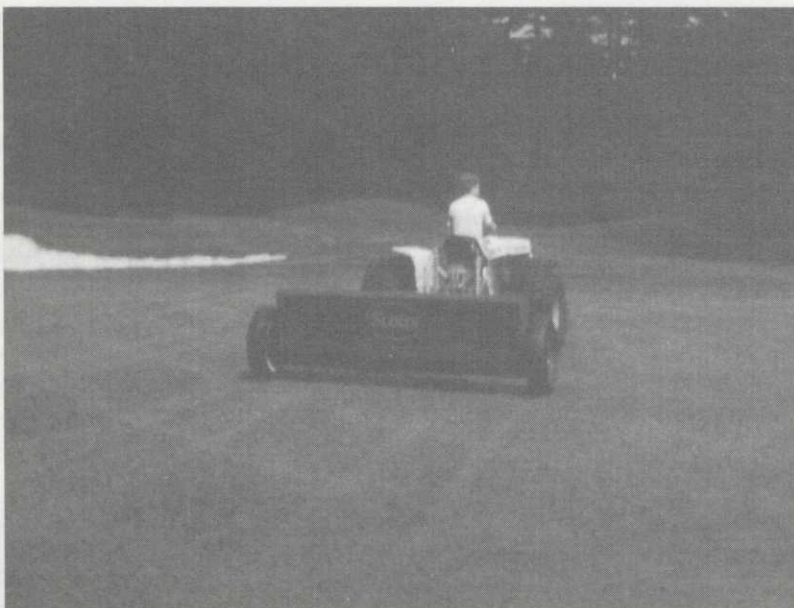
researching, planning and organizing the program, once it is approved by the club. Along with these two key factors there were listed various areas of concern which should be either corrected, implemented or checked before one undertakes the actual conversion program.

With all considerations now completed, the plan is ready for implementation. The field tips that accompany this article are key elements in organizing the staff, machines and materials. I won't say that "it's all in the organization," but that is a great part to finishing the conversion program successfully.

Some adjustment may be needed

If I were to undertake such a fairway conversion program again, I would make one major adjustment. I would do everything the same way except that I would not use Embark five days prior to the start of the program. Instead, I would kill the fairway grasses using the non-selective vegetation killer Round-Up. I would do this seven to 10 days prior to the initial slicing, aerification and overseeding at a rate of 1 quart of product/acre or 1 lb. AI/acre. Through much observation and study from the successes or failures I have had using Prograss alone, I would use Round-Up in conjunction with Prograss for the following reasons:

- It would quickly eliminate the weak and nuisance colo-



Final broadcast seeding.

Photo by Rick Holanda

nial Bent grasses, and the non-desirable ryegrasses. It is far better and less aggravating in the long term to rid oneself of these problems in the beginning rather than to fight them later.

- By using Round-Up the possibility of gaining a 100% initial Bent covering is assured.
- In any Round-Up program one can expect a 30% to 50% reinfestation of Poa during the first three to 12 months. To prevent this reinfestation, applying Prograss in three

1000 sq. ft. in two directions for a total of 1 1/2 lbs./1000.

- 10th step: As soon as slicing and aerification are completed, mat it in. We used two Feust 10' drag mats in more than two directions. On the third matting we used two Keystone 10' mats after debris was blown off. On the collars and approaches we used a Keystone 5' drag mat behind a Cushman.

- 11th step: Blow off the debris. We used two Jacobsen 40 Blowers and one Olathe Blower on a 72" Toro Rotary. Use hand blowers for collars and approaches. We had three available. To facilitate clean up, mow fairways at 3/8" with Triplex Greensmowers.

- 12th step: Sweep roughs of all debris. We used an Olathe Sweeper and a John Deere Vacuum Sweeper.

- 13th step: Water daily, unless there is enough rain, three to five times a day with automatic sprinklers at six-minute intervals.

Hand syringe collars and approaches and missed areas three times a day. Do this for two weeks or until rains come and grass starts to mature. If disease pressure builds, decrease irrigation frequency. Do not water at night. There is the possibility of stuck or missed sprinkler heads and the disease pressure.

- 14th step: Make a second application of Scotts Starter Fertilizer two weeks after all these steps are completed at a rate of 1/2 to 3/4 lb. Nitrogen/1000. Apply at same rates in September, October, November and December.

- 15th step: Apply, as conditions favorable to the development of Pythium-related diseases dictate, a combination of Manzate Z, at a rate of 6 oz./1000 and Subdue at a rate of 1 1/2 oz./1000, two to four days after germination.

- 16th step: Have available four workers to spot seed and topdress any areas of the fairways that become torn up and have void patches.

The membership newsletter on conversion

Communication is a key ingredient

As I said last month, I cannot stress enough the two basic factors that will lead to success. First, sell the greens chairman, committee and membership. Exhaustive research on the subject and presentation to the people who matter is the key: the greens chairman and his committee, the board and finally the membership in a membership meeting, as well as in a newsletter sent to the entire membership.

Naturally not all members will be at a membership meeting. It is vitally important to tell the members who were not at any face-to-face meeting about the program. I did that with several newsletters. The following newsletter was sent to the membership after we completed the program:

To: Membership of the Merion Golf Club

From: Richard M. Bator, Course Superintendent

Date: September 6, 1990

Subject: Recap and Progress Report of East Course Fairway Bent Conversion Program

First of all, I would like to thank the membership for their patience and understanding during the two week period (August 6-17) in which we carried out the first stage of this program. I apologize for the partial closing of the course over a two week period, instead of the planned one week, but adverse weather conditions during the first week prevailed over our original planned starting and finishing dates.

Starting on August 13, and ending on August 16, all of the before mentioned (Newsletter No. 4) renovation and over-seeding procedures on fairways, collars and approaches have been completed one day ahead of schedule (four days or 45 hours), and exceeding my original planned time schedule.

Needless to say, I am more than pleased, not only with the completion dates, but also with the quick initial germination of the new seed (germination was three and one-half to four days), its uniformity in coverage, the lack of large areas of torn spots or damage, and the final general appearance of the existing fairways after they were completed. So far, it appears that we have gotten off to a good start during this initial stage of the transition.

The only real damaged areas that were incurred were in the first cut on the intermediate rough. This I expected, and was due to the slicing and aerification equipment, along with the puffiness and thatch that generally develops in an intermediate rough that consists of Poa and Bent. All areas void of turf have to be over-seeded with ryegrass, and should show full recovery in several weeks. Next season, the existing Poa-Bent population in these areas will be burnt off and over-seeded with a more desirable mixture of ryegrass.

The second, and most critical, stage of this renovation program will take place on October 1st when the first of three planned Fall applications of the Poa control herbicide, Prograss, will take place. The next applications will take place on October 23rd and November 15th.

This chemical will be applied at lower than recommended or full strength rates, and this is to lessen the chances of injuring the new Bent that was over-seeded. Also, by using lower rates, the death of the Poa will be more gradual and less drastic, and the turf will be more playable for the membership. It will be during this late Fall time frame that the actual death of the Poa will take place, and the newly seeded Bent will hopefully take over and fill in the voids of dead turf left by the disappearing Poa.

If our seed catch of new Bent continues to mature as I expect, the transition period from Poa to Bent could be smoother and quicker than I originally planned. But, a big "IF"! To enhance the maturity of the new Bent, the fairways will be fertilized every two to four weeks.

I do anticipate that certain small areas, especially lower No. 12 and the left side of No. 5 closest to the green, will at some point next season require some minor reseeded. These areas are in need of drainage, which will be completed this Fall, and are the main problem if a poor catch of new Bent does occur. This is not a major project, and will cause minimal disruption in play.

Winter rules will be in effect until further notice.

In closing, I would be remiss if I neglected to give thanks to our golf course staff for their dedicated efforts and contribution to the success of such a program. Each individual staff member had their own duty or responsibility to perform, and they all worked as a well-oiled machine and team, with a minimum of mistakes. Their tireless efforts in following a planned and calculated attack was, I feel, the key to our success during this initial stage. We can all be proud of their efforts.



Photo by Rick Holanda

Hand watering of localized dry spots

applications from 36 to 40 days after seedling germination is a must. These applications will kill any emerging Poa plants, some Poa seeds and clover, too.

One can then apply Prograss during the next three seasons as needed, using the same initial rates. Using these two herbi-

cides together or in harmony will ensure the goal of consistently having fairways with a Bent population of 90% or more.

Bermuda- Ryegrass to Bent conversion for the transition zone

Contrary to turf folklore, Bent grass, if properly over-seeded initially and well-maintained, can survive very nicely in the transition zone, compared with Zoysia, Bermuda or Ryegrass.

I would stick with my initial conversion principles with the exceptions of pre-conversion aerification and deep slicing procedures and revised herbicide rates and applications.

One of the keys in getting the most long-term kill of the common Bermudas is — one to two years prior to their conversion — with an intensified aerification and deep



Photo by Rick Holanda

Slicing and feeding of approaches and collars.



Photo by Rick Holanda

Finish mowing after renovation completed.

Field tips

Workers & schedules

At the Merion Golf Club I had available for this project 23 workers. Here is how I divided up the task according to the manpower I had available (using the names in this schedule, it is possible to make up one's own manpower allocation):

- Apply Scotts Starter Fertilizer, July 29 or 30. We used a pull-behind Lely or Vicon with Dwight. Also apply the same on collars on the same day with John and Greg. Hand water after application.
- Apply Embark using two sprayers with Dwight and Brandon. Apply Embark on collars with Bill. We used a borrowed applicator on July 30.
- Apply Subdue and Manzate Z with Dwight and Brandon on July 27, 28 or 29 at night. We sprayed the greens and tees, too.
- Shock mow fairways at 1/4", four to five fairways each day. We used a dump truck for the clippings. Our crew included Carlos, Miguel, Eli, and Dominic on Aug. 6. Shock mow collars all at once with Reggie, Greg, Bob. We used two dump body tractors for the clippings.
- Slice in three directions at same time: We used a 548 Slicer, a Ford with Corky, a 548 Slicer, a Massey with Jim, and a 548 Slicer, a Long with Ken. We tested all equipment and did routine preventive maintenance the week before.
- Aerify in four directions with a Tara Aerifier with Bob, Sam, and Greg. We used short tines and no weight trays.
- Seed with Scotts 10' Seeder with Dwight in two directions.
- Drag in two or three directions using 10' Feust Drag mat. We used the Ford with Frank and the Cushman with R. Holanda.
- Blow off debris: we used the Jake 50 with Greg, the Jake 40 with Reggie and the Olathe Blower on 72" Toro Rotary available as a spare.
- Sweep the roughs: we used the Olathe Sweeper with Miguel and the John Deere Vacuum Sweeper with Dominic
- The same operation must be done on the collars and approaches. We used the Jake 524 Slicer/Seeder in two directions, two hand leaf blowers, one Scotts 3' spreader for seed, tennis court rakes, a five-foot Keystone Drag mat on a Carry-All and one Toro Aerifier with tines cut off at 1" with Brandon, R. Tacconelli, and John.
- Water each fairway immediately. Do three-

Continued on page 15

slicing program. The goal would be to complete eight to 12 aerifications and six to eight deep slicings during this one to two year period. Or, accomplish as many of these aerifications and slicing as the club membership will tolerate. The principle behind this recommendation is to eliminate as much Bermuda thatch and as many runners as possible. This will ensure the best seedbed preparation for an initial 100% seed catch. This will also cut off a large percentage of Bermuda runners, which will cut down on the potential of Bermuda grass reinfestation, at the time of seeding and long term. To further enhance the seedbed preparation by thatch and runner elimination it would be best to aerify in three directions and slice in two directions one week prior to the first Round-Up application. By doing this one will thin the Bermuda to its maximum which can only benefit the program's total success.

Round-Up applications

I would apply Round-Up twice, at seven to 10 day intervals, before to the start of the actual renovation and seeding. Each application would be five quarts of product per acre or five lbs. AI/acre. With two applications and increased rates, the chance of early and long term Bermuda reinfestations will be minimized. The number of applications and increased rates are a must if a successful Bent conversion program is to be achieved.

Continuing the use of Prograss in the fall is also a must if Poa reinfestation is to be curtailed. Use the same rate and number of applications, three, that are listed in the Prograss schedule on this page. As for the use of Prograss thereafter, use the same number and rates of application during the following Fall. If Poa is not a problem, cease using the Prograss until an undesirable percentage of Poa returns.

Six to 12 months later

Naturally, one may have to spot over-seed or even spot-sod.

It is important to keep up fertilization levels. Use a complete fertilizer and iron.

One should not have to use Embark the following spring.

The following August one must check for reestablishment of Poa. Make the decision then if Prograss applications are needed. It is possible one may to use Prograss for

the next three seasons, using the 3/4 lb. AI/acre rate for each of the three fall applications. This was our practice and it worked out well for us.

There are three possible negatives in using Prograss for the eradication of Poa. Although possible, they are very remote, with only short term effects that can quickly be corrected.

There might be not more than 5% perennial Poa in the fairway turf as opposed to predominant annual Poa. The perennial variety would probably not be affected by the lower rates of Prograss that would be applied during the conversion program. These low populations of perennial Poa could easily be eliminated during the next fall, using the higher application rate of Prograss.

In low, poorly drained areas phytotoxicity and death of grass in these areas could occur following any sudden or heavy rain within five days after each application. If this did happen, these areas would be sliced and seeded in the spring after the conversion. There would be only minor inconvenience to the membership and full turf cover would be the

result. Phytotoxicity could also occur as winter kill in the winter after the conversion if there were a severe and prolonged cold spell then. Severe means temperatures at 10 to 15 degrees Fahrenheit below zero for more than two to three weeks. This did happen during the winter of 1994 with death of turf as a result of low temperatures. Over-seeding the following spring could correct this problem.

One area of concern in choosing Prograss with its gradual elimination as opposed to the total kill obtained by using Round-Up

was that the Bent populations on our fairways were the old colonial varieties. These varieties are patchy, grainy and puffy, as well as susceptible to mechanical damage by aerification and de-thatching. They are also prone to damage by insects and fungus. These varieties are also damaged by most pesticides and by cold weather, causing discoloring and damage. Spot spraying them with Round-Up and over-seed the resulting dead areas should solve that problem.

It is certain there will some reinfestation of the old, common Bermuda variety three to six years later. If this the case, the choices would be to spot spray these patches with Round-Up and over-seed with Bent. If the reinfestation is more uniform and a nuisance, it may necessitate re-spraying all the fairways and carrying out the initial program again. This would be the worst-case scenario. It would be five years before this would be evident. With sound Bent management practices, this may be able to be avoided.

Prograss schedule

Herbicide application

- 1st application: Oct. 1 1/2 lb. AI/acre Prograss or 1/3 gallon product/acre of Prograss. Apply 3/4 lb. Nitrogen/1000 sq. ft.
- 2nd application: Oct. 23 3/4 lb. AI/acre Prograss or 1/2 gallon/acre of product Prograss. Apply 1 lb. Nitrogen/1000 sq. ft.
- 3rd application: Nov. 15 3/4 lb. AI/acre Prograss or 1/2 gallon/acre of product Prograss. Apply 1 lb. Nitrogen/1000 sq. ft.
- Do not water for 24 hours after application as Prograss is a foliar absorbent herbicide.
- Prograss should not be applied until 42 days after initial germination.

Bent survived the winter

I would suggest that the severe cold and ice damage that resulted from the winter and early spring weather this year, many superintendents might think about using Bents on their fairways. I say this because the highest percentage of turf losses were Poa, Ryegrass and Bermuda grass. The Bents showed little to no damage from the severe weather. That in itself should sell the program.

I will make one more point in favor of Bent fairways. It has always puzzled me that, if superintendents in the transition zone can grow Bent-Poa greens at between 1/8" and 5/32" and Bent tees at between 1/4" and 3/8" and hold them throughout the summer stress season, then Bent fairways, mowed between 3/8" and 1/2", can also be grown and held during these months. It should be somewhat easier to keep the Bent fairways, considering the height difference between fairway and greens and tees. I also believe there has been prejudice against Bent fairways. But, as more and more superintendents and university researchers complete the change-over program and see the results, this prejudice against Bent fairways will lessen to the benefit of the golfer as well as the superintendent.

This conversion program has worked at the Merion Golf Club and for other superintendents. It can work successfully for you. What is needed is for the superintendent and the club to be convinced of the benefits of Bent fairways. The parties — superintendent and the member — must commit themselves, as well as to learn the proper procedures and programs in maintaining Bent, to the program and must carry it out from start to finish to have the finest hitting surface that can be attained for the membership. ■

Workers & schedules continued from page 13

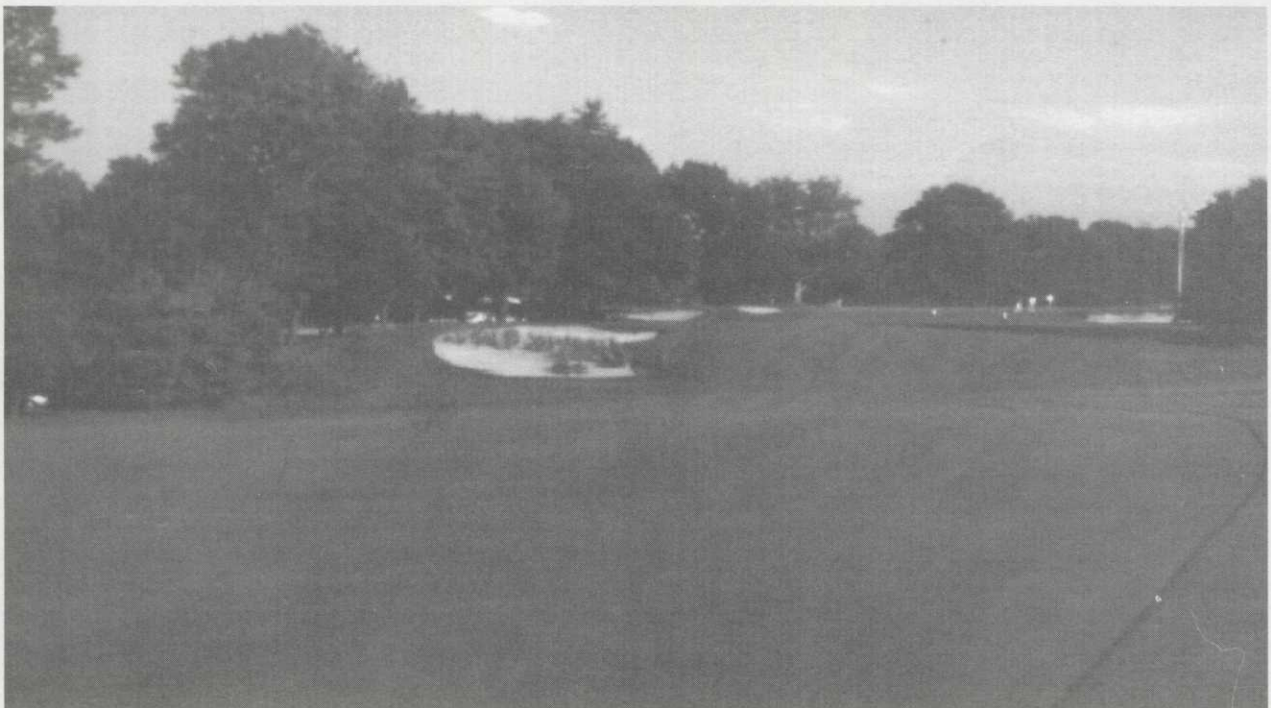
five moves a day with Charlie and Kevin. These two workers also assisted me in keeping the operation running as smoothly as possible. We used hand syringers for missed areas with Matt, Bill, and Dick. Water greens and tees with the automatic watering system where possible, and by hand if needed. Deep soak the night before or stay three holes ahead of slicers and use the automatic watering system. Water the first three greens by hand. Use the automatic watering system on the tees.

- West mowing schedule, Aug. 6-10: greens, tees, collars and fairways — Monday, Wednesday, and Friday.

- East mowing schedule, Aug. 6-10: tees — Tuesday, Thursday, and Saturday. Greens — Tuesday, Thursday, and Saturday. If the operation is completed on time or earlier, step up these mowing schedules to normal mowing schedules. Intermediate rough, mow twice with Dominic on the National. Intermediate rough around the greens, mow twice and assign workers as they are available.

Mowing on both courses should be done as workers are available.

- Apply Subdue and Manzate on Aug. 13 with Brandon and Dwight. This date must be met.



Three weeks after completion.

Photo by Rick Holanda