

CHIPS & PUTTS

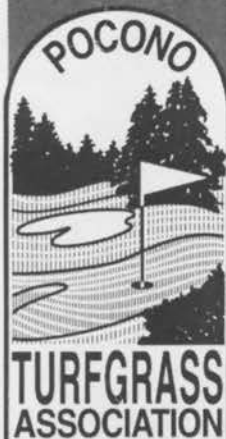
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Riverview Country Club

**Brian Bachman,
Golf Course
Superintendent**

Riverview Country Club will graciously host our July meeting. Riverview is located in the historic town of Easton, PA. The development is located on over 500 acres and was designed by Jim Blauckovitch. Jim Blauckovitch did the entire plan for Riverview including course layout, grassing scheme, and the irrigation design. The course opened for play in September of 2004 after 2 years of construction. The two years have proved to be very difficult with the regrassing of holes due to washouts from the heavy rains. Some of the holes had to be regrassed three times during the grow in.

The course is part of a planned residential development already underway. This new semi-private course is a Par-72 layout that measures 6505 yards from the tails. Riverview Country Club features some unique holes such as the 17th which has an island green, and the long Par-5 13th, which measures out at a respectable 580 yards. In addition to some unique holes, the grassing scheme at Riverview is different as well. Fairways have bentgrass landing areas with low cut Kentucky Bluegrass fairways, which makes for twice the maintenance as both areas are managed at different heights, with different spraying and mowing schedules. Riverview has very large fairways that wrap most fairway bunkers making this a great place to improve your fairways hit in regulation average, as there are more acres of fairway to land on.

Golf Course Superintendent, Brian Bachman, has been at Riverview since September 2002. Prior to his position at Riverview, Brian was an assistant at Olde Homestead and he has also worked summers at Center Valley. While at Olde Homestead, Brian was involved in the construction of the Par 3 course and the construction of two new Par 4's. Brian is a 1998 Penn State graduate with his BS in Turfgrass Management. Assistant superintendent, Brett La Barre, started with Brian in May of 2003. Brett is a Lock Haven graduate with his BS in Recreation and Outdoor Management and also holds an Associates degree from Sand Hills in Turfgrass

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President's Message.....

I feel very fortunate to have been able to host the June meeting when we did. Seven days later, I would have been ashamed to have anyone over to see the place. Valley has been reduced to a dried up, brown, crusty shell of what you were able to experience on the 20th. It is amazing how fast poa can check out.

Thanks again to Grass Roots and Atlantic Irrigation for sponsoring the meeting. Thanks also goes out to Lee Kozsey for sponsoring prizes for all the par three's and one long drive, which I heard everyone say they blew past but were not in the fairway. Thanks also to Darin Bevard for attending and speaking. And finally, thanks to all of you who were able to make it. With all those people, who'd a thunk the scorekeeper would win again? I heard next month, he is offering a "beat the Stevester" challenge for anyone who is interested.

Good Luck to everyone with the rest of their summer. Hopefully, we will see you at a few more meetings.

Eric Reed

Assistant Editor

It was great to see all those faces at Blue Ridge Country Club and Valley Country Club for the May and June meetings. Hopefully the weather will cooperate again in July and we will have another large gathering of friends.

As the summer gets into full swing, take the time to recharge the batteries from those long hot days and enjoy yourself at a monthly meeting. This year has been hot and dry, so also take proper precautions by using sunscreen, drinking plenty of fluids and finding a cool spot to relax during the day.

Jim Gurzler

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Options for Chemical Control of Moss in Putting Greens

Dr. Peter Landschoot and Mr. Joshua Cook, Dept. of Crop and Soil Sciences, Penn State

Silvery thread moss (*Bryum argenteum*) in putting greens is becoming an all-too-common occurrence on Pennsylvania golf courses. It can creep into a green virtually unnoticed, until suddenly it seems as though it is taking over the entire playing surface. Once established, moss is extremely difficult to control and almost impossible to eradicate. Chemical control measures are often tough on turf, and slow in killing the moss. However, a few new products and strategies for moss control are providing some relief for Pennsylvania superintendents.

Although chemical control strategies can suppress or kill moss, they must be coupled with changes in the cultural conditions that allowed moss to encroach into the greens in the first place. The most obvious culprits, low nitrogen levels, aggressive mowing practices, and liberal irrigation, can usually be adjusted to some degree. Other causes of moss encroachment, poor drainage, disease problems, shade, traffic, and poor air circulation, represent greater challenges. If the major causes of moss encroachment are not dealt with, even the best chemical control program will not prevent it from coming back.

A flurry of moss control research at Oregon State, Cornell, North Carolina State, and Penn State have revealed that several products (some labeled for moss control and some not labeled) have provided good control of silvery thread moss when used at proper rates and application timings. The following is a product-by-product summary of these products and their effects on moss.

Summary of Chemical Moss Control Options

Chemical controls for moss include products containing metals, soaps, salts, or herbicides. All of these products can damage turf, so be sure to thoroughly test each product on a practice area or nursery before large-scale use. Realize that results of moss control programs can be much more variable than those for diseases and weeds. Factors such as climate, pH of soil and spray tank water, rate of product and dilution rate of water, time of year, and grass type can all influence efficacy and burn potential. Therefore, results obtained at your course may differ somewhat from those described for the products listed below.

Metals:

Iron sulfate – Iron sulfate has been used to control moss in putting greens for decades. Studies at Penn State showed that iron sulfate applied at 0.15 to 0.2 lb iron in 2 gallons water/1000 ft² on 14 day intervals (4 to 7 applications) provides good moss control. The pH of tank water may influence efficacy, with slightly acidic water (pH = 5.8 to 6.5) providing better control than alkaline water (pH \geq 7.5). Iron sulfate can be applied at any time during the growing season, but moss control and turf recovery is better during periods of moderate temperatures (50 to 80°F). Some application difficulties may occur due to clogging of nozzles and tracking of spray residue on turf. Iron sulfate produces a noticeable, but temporary black color on moss and turf. When the black color dissipates, a pleasing green up of the turf occurs. Iron sulfate is not labeled for moss control in turf.

Junction® (copper hydroxide) –

Junction is a turfgrass fungicide that contains 15% mancozeb and 46% copper hydroxide. Recently, the manufacturer of Junction released a FIFRA Section 2(ee) recommendation for moss control on turf (greens, tees, and fairways). The recommendation lists a preventative and a curative program for moss control. We don't see a lot of value in the preventative program if you don't already have a moss problem. It calls for 1 to 2 oz of product applied on 7-day intervals beginning in early spring and continuing to early fall. This is an intensive, costly spray schedule that is difficult to evaluate if you don't have a moss problem. The curative program of 4 oz product in 2 gallons water/1000 ft² applied every 7 to 14 days (seven or more applications) in the fall has shown promise in the northeast and mid-Atlantic regions.

Research at Oregon State, Cornell, and Penn State revealed that Junction applied at 5.0 oz product/1000 ft² every 14 days beginning in mid-October for a total of five or more applications provides excellent control of silvery thread moss the following spring. In our tests, we did not observe any noticeable effects on moss during the fall application period. It is possible that as copper concentrations accumulate in moss during fall, the plants be-

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POCONO ROUNDUP

NEWS AND VIEWS FROM THE POCONO TURFGRASS ASSOCIATION

Continued from Page 1

Management.

Dr. Andrew McNitt will be speaking at this meeting on the topic of choosing the right topdressing. Dr. McNitt is an instructor and researcher at Penn State University. Two of his main areas of interest are turfgrass soils and golf green construction. Dr. McNitt has been with Penn State for the past 20 years and currently teaches in both the two-and four-year programs.

We look forward to another well-attended day as we all get a chance to play a new venue. Hopefully, the weather will be cooperative so that everyone will have a chance to sneak away for some well needed R&R as the summer hits full swing. Thanks again to Brian and the staff at Riverview Country Club for hosting the Pocono Turfgrass Association this month.

PTGA MEETING SCHEDULE

July 19	Riverview Country Club
August 15	Water Gap C. C. (Clambake)
September 8	Elmhurst Country Club
October 5	Irem Temple C.C.
November	Whitford C.C. w/Philadelphia

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come weaker, eventually succumbing to the copper during the winter months. Studies at Penn State showed poor moss control with Junction when applied in warm weather during the summer months. We also found that fall applications are much more effective in controlling moss than spring applications.

Our research showed that some yellowing of *Poa annua* may occur during spring following fall applications of Junction, and this year we observed some yellowing immediately after some of our early fall applications. In all of our tests, this yellowing was minor and no turf thinning occurred. We have spoken with one superintendent in Pennsylvania who experienced strong and objectionable yellowing following an application of Junction, so be sure to put out a test strip on a nursery or practice green before making broadcast applications on your greens.

We frequently get questions regarding excess copper build up in soils following multiple application of Junction. This is probably not a big concern on most greens if the program is only carried out for one or two years. However, more research is needed to determine the number of applications that can be safely applied over consecutive (three or more) years.

Another question involving Junction is how the pH of tank water influences efficacy. Generally, the solubility of copper increases as pH of the tank solution decreases. It follows that slightly acidic tank water will probably help to increase moss control. The pH of the tank water in our study was between 6.5 and 7.0 and appeared to be adequate for obtaining excellent moss control. Keep in mind that copper hydroxide is a base, and pH of the tank water will likely increase after Junction is added.

Soaps and Salts:

Dawn Ultra™ – Dawn Ultra dishwashing detergent applied at 2 to 8 oz product/1000 ft² during cool or warm weather on 14 day intervals (4 to 6 applications) can control moss in some cases. You may need to apply Dawn Ultra as a drench (in 6 to 12 gal water/1000 ft²) if applications in 2 gallons of water/1000 ft² are not effective. Trials with Dawn Ultra at Penn State during summer and fall using different rates, timings, and water dilution rates yielded poor moss control. Inconsistent results and burning of turf may be a concern when using Dawn Ultra. This product is not labeled for moss control in turf and probably never will be.

Baking soda (sodium bicarbonate) – Baking soda is useful for spot treatments only. Our studies revealed that drenching individual moss patches with a solution of 2 to 3 tablespoons baking soda/quart of water on warm, sunny days provided very good control. In most cases, only one or two applications were required for complete control. If you want to try baking soda, be very careful when spraying the moss patches as some burning of surrounding turf may occur. As with all moss treatments, be sure to test baking soda on a practice area before using on a green. As you may have guessed, baking soda is not labeled for moss control in turf.

TerraCyte™ (sodium carbonate peroxyhydrate) – Terracyte is a granular product labeled for moss and algae control in established greens, tees, and fairways. According to label directions, the product should be applied with a drop spreader at 8 lb/1000 ft² in spring or fall when temperatures are 50°F or above. Because TerraCyte is a fine granular product, coverage of moss is incomplete and repeat applications are usually required. The label allows for subsequent applications on consecutive days at rates of 2 to 4 lb/1000 ft². Terracyte should be watered-in immediately following application.

At Penn State, we found that Terracyte applied at 8 lb/1000 ft² every 14 days for a total of 4 to 5 applications in warm and cool weather provides excellent moss control. We observed some burning of turf following applications during high humidity conditions. Consecutive day applications of 4 lb/1000 sq ft increased efficacy, but also increased burning of turf. Burning of turf is more pronounced on dew-covered turf, so be sure to mow prior to application of TerraCyte.

Herbicides:

Quicksilver™ (carfentrazone) – Researchers at North Carolina State University recently found that Quicksilver herbicide controls moss in putting greens without serious turf injury. Researchers report that Quicksilver applied at 7 oz product/acre in 100 gal water on 14 day intervals for 2 to 3 applications provides excellent control of moss. Quicksilver appears to work under warm (mid 80's) and cool conditions. This product is not labeled for moss control. Although we have no first hand experience with this product, we will initiate studies this summer.

Moss control research at Penn State is funded by the Pennsylvania Turfgrass Council.
Products were donated by Simplot Partners and BioSafe Systems.



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