



THE NEWSLETTER

May 2018

of the **Golf Course Superintendents Association of New England, Inc.**

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Thoughts From Your Executive Director *by Don Hearn*

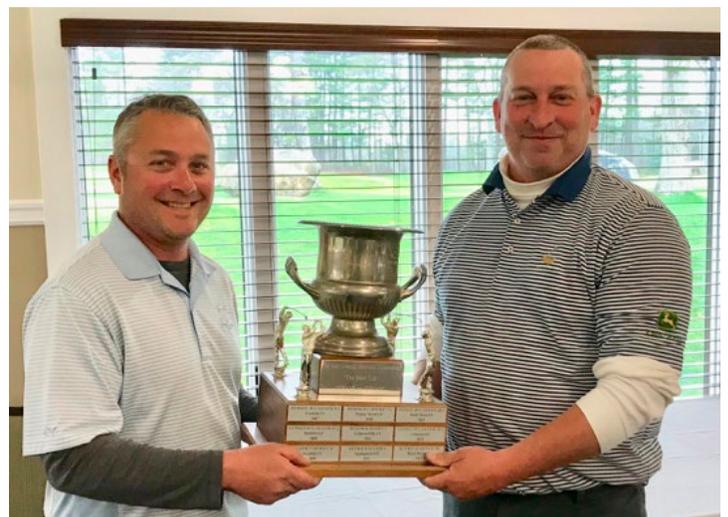


From left: Mike Kroian, Melissa Gugliotti, Jason Kennedy, our Host Mike Poch

This year's Bear Cup tournament was played April 30 at Foxborough Country Club. Our host **Mike Poch**, and Assistant Superintendent **Jason Kennedy** went out of their way to provide good cheer and wonderful hospitality. The entire staff was great to work with. Golf Professional **Lou Rivers** made the raw weather day end smoothly with his handling of the score board and the presentation of the results was a neat package. Function Coordinator **Tammy Edinger** and her teammate Sherry served the food and beverages and made us feel at home. Executive Chef **Nick Dadona** and his staff had the food prepared to the liking of all the players. The results of the day favored the GCSA of New England. When the results were posted declaring the New England team the champs with a winning score of 9 ½ to 6 ½ the GCSA of Cape Cod gave up possession of the Bear Cup after a six year reign. The event was played Ryder Cup style.



From left: Tom Hoffer, Dan Fuller, Bob Dembek, Tim Crane



Jeff Urquhart, left accepts the Bear Cup Trophy from Brian Smoot, President of the GCSA of Cape Cod

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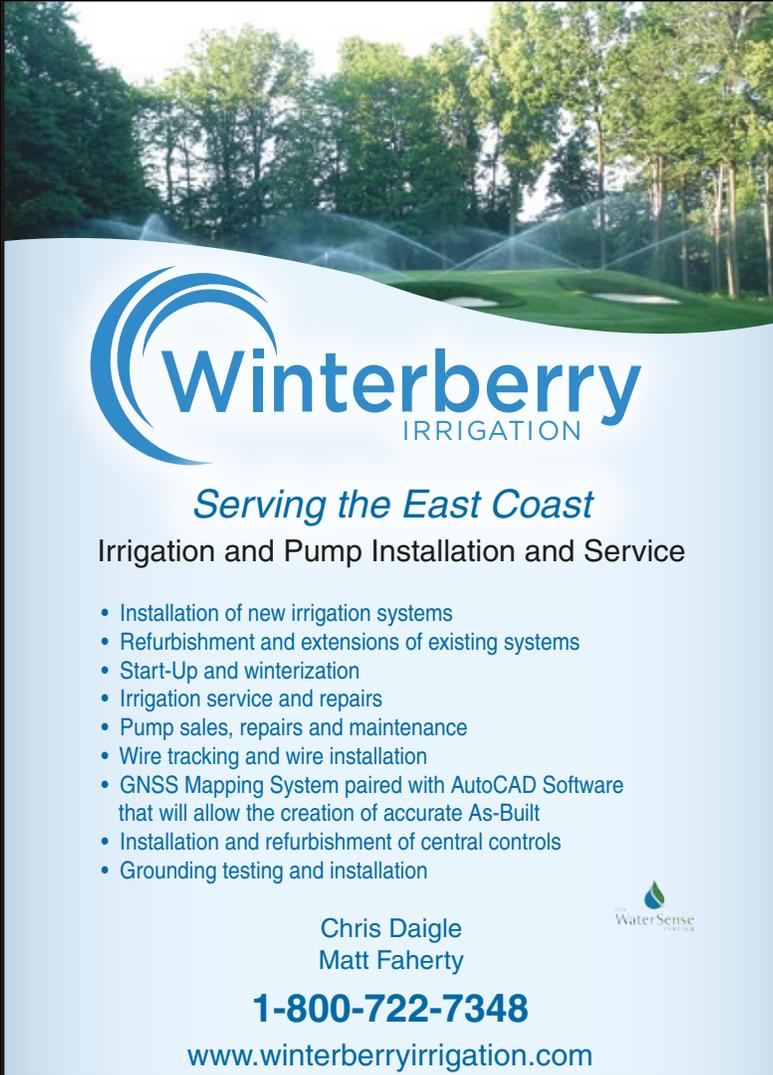
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New England Regional Turfgrass Foundation, Inc.

May 15, 2018 Press Release



2018-2019 NERTF Executive Board

(l to r): Peter J. Rappoccio, CGCS (Vice-Pres.), Jeffrey M. Urquhart (Pres.), Randy S. Weeks (Immediate Past-President). Robert Searle (Secretary) and Mark Mansur (Treasurer) were not at the meeting.

The New England Regional Turfgrass Foundation recently held its 21st Annual Meeting on May 14, 2018 where a new Executive Board was elected. Jeffrey M. Urquhart, Golf Course Superintendent of the Milton-Hoosic Club in Canton, MA has been elected as the 22nd President of the Foundation, succeeding Randy S. Weeks of Laconia Country Club, Laconia, NH.

Jeff, has represented the Golf Course Superintendent Association of New England on the NERTF Board since 2014. Peter J. Rappoccio, CGCS of the Concord Country Club also of GCSANE will serve in the vice-president's seat for this upcoming year. Mark Mansur of Wintonbury Hills Golf Course in Bloomfield, CT will serve as the Treasurer for his second year. Robert B. Searle of the Abenakee Club of the MGCSA has been elected to serve as secretary. Randy will continue to serve on the board as the Immediate-Past President. The foundation consists of 2 delegates from each of the 7 GCSAA

Chapters located in New England, 1 delegate from the Sports Turf Managers Association of New England (NESTMA) and 1 delegate from the Massachusetts Association of Lawn Care Professionals (MALCP). There are two advisory seats filled currently by the University of Massachusetts and the University of Rhode Island respectfully.

The 21st Annual Conference and Show was held in Providence, RI on March 5th through March 8th, 2018. The 2018 winter weather cooperated nicely on Monday and Tuesday opening the doors for attendees and exhibit booths whose sales were very strong. Monday/Tuesday seminar attendance was at its second highest number since seminars were added. The weather did become a challenge to the show goes on Wednesday. Matt Light, retired Patriot and 11yr Offensive Lineman for the team, inspired a large crowd during his keynote address. 71.5 total hours of Education for all attendees was available during the 4 days and the trade show was open a total of 13 hours.

The 2019 show dates for the 22th annual show are: March 5-7, 2019 in Providence, RI. For more information on the show and New England Turfgrass Research please visit our website: www.nertf.org.

In other NERTF news, the 7th annual Tee-Up New England rounds of golf auction took place April 9-16, 2018. 112 rounds of golf across New England and one day of tennis at the Longwood Cricket Club were auctioned off. Rounds were collected for the auction by the NERTF and ATG (Alumni Turf Group). All rounds were sold, and little over \$32,000 was raised towards turfgrass research in New England. We thank greatly all of the courses who participated in 2018 and wish to thank everyone for supporting turfgrass research. A list of courses that participated is located at www.tee-upnewengland.com.

HOW TO BE A GOOD CUSTOMER *By Don Hearn*

I've talked with several company representatives in our industry and asked what is good about what they do and what isn't as good as it could be. For the longest time, I thought the disappointment of not making a sale would be a strong negative. Or, the loss of a sale to a competitor would be crushing. To my surprise, I've been told, without exception, this isn't the negative I thought it was. Not that they like it, but it's part of the daily process they deal with. No different than a superintendent feeling bad when the day doesn't go as planned. Or when something beyond your control happens – you deal with it and move forward.

The greatest disappointment seems to be how some company representatives are treated by their customers. Sure, the customer expects service, and/or they expect a product. But service to the customer does not mean servitude, and selling someone a product does not mean selling one's dignity. Remember the Golden Rule – Treat others as you would want to be treated yourself. Pretty simple. How would you feel if you were on the receiving end of what you are dishing out? Wouldn't like it? Then don't do it!

Some in our industry complain about receiving bad customer service from companies without ever stopping to wonder if they're being a good customer. Keep in mind If you don't have the courtesy of treating your company reps like they are human beings, they won't be motivated to giving you their best. It's a two-way street.

Everyone goofs up at some point or the other. No matter how meticulous a person is, there are days when no amount of coffee will help them out of grogginess. Mistakes will be made and the day could turn out a disaster.

Everyone has days like that. The only problem is that most people just don't seem to remember that other people do too. So, the next time you seek help from a company rep, remember they're people too and have stress in their lives.

No company rep wants to make life miserable; they just want to help in whatever way possible. Company reps shouldn't have to earn the right to be treated with courtesy and respect.

Customer support is still a two-way street. You get what you give. Being a good customer usually ends in a win-win; it brightens a company rep's day and helps you receive good service.

During my many years in the business I have been told stories about poor service or poor attitudes of some in the industry. Of course, I listened from the viewpoint of a fellow customer. Seldom did I consider the problems the sales rep may have encountered trying to deliver the product. The blame was direct. Yup, it was the rep's fault.

Certainly, the representative has a duty to treat the customer with respect and caring – remember the Golden Rule.

Following are some responsibilities of the customer in the customer/representative relationship.

- Separate the person from the performance – people mess up. There's a big difference between an accident and negligence, between a mistake and malice. Many times the person in front of you is trying to do a good job — if so, then cut them a little slack.
 - Don't be a bully. Pushing around a rep by raising your voice, making unreasonable demands, and showing utter contempt for their very being does not make you powerful, it just makes you a bully. Don't push people around just because you think you can.
 - Be available. If you agree to meet with a rep make sure you've set aside time to do so and make yourself available. Telling a person you don't have time for them when they have set aside time to meet with you is disrespectful and a real disappointment. If something unexpected happens let the rep know as soon as you can. A wasted trip is a downer.
 - Adjust Your Expectations — Expecting great service is your prerogative; expecting great service to mean that the company does whatever you want, whenever you want, and for as little as you are willing to pay is not. Adjust your expectations to the realities of the business you are dealing with.
 - If you're worried that sharing your budget will jack up the price, you can do one of two things, offer a range, or find another provider because if the level of trust is that low then other problems will emerge. By sharing your budget, you can help the company rep serve your needs.
 - PAY YOUR BILL. What does paying your bill have to do with working with a company rep? Try not paying your bills promptly and see how responsive he or she is to your next request. While most of us are not directly responsible for the actual payment of the bill, we should realize if it doesn't get paid, you probably won't have what you need delivered when you need it. Some company policies can be personally frustrating; don't shoot the messenger. Chances are they did not create the policy and do not have a choice but to enforce it.
- Don't think of yourself as an island that requires a permit to enter. Don't be full of yourself. Have respect for those who are an important part of our industry. Expectations color our perception—having too many, or the wrong ones, allows for self-deceit and an unnecessary sense of entitlement. There are companies who love their customers, refine their processes, and believe that providing excellent support is just as important as their product or service. Be kind and celebrate great representatives and their companies.

2017 Final Project Summary

Project Title: **Evaluation of Rolling Frequency and Fungicide Programs on Golf Course Fairways for Dollar Spot Control**

Principal Investigator(s): James Popko, M.S., Geunhwa Jung, Ph.D.

University: University of Massachusetts, Stockbridge School of Agriculture, Amherst, MA 01003

Project Overview

The goal of this project was to comprehensively look at effects of fairway rolling on turfgrass quality and disease suppression and provide an overview of how superintendents can practically implement this practice. From 2015-2017, we examined the effect rolling frequency (0, 3, 4, and 6 times per week) on dollar spot severity and different fungicide spray programs (calendar, threshold and untreated) to determine potential fungicide reductions. We also examined the impact of rolling on soil compaction, clipping yield, root density and thatch. Rolling reduced dollar spot in 2015 and 2017

Objectives:

1. Determine the effect of rolling frequency (0, 3X, 4X, and 6X per week) on the dollar spot severity.
2. Determine if using a threshold based spray schedule compared to a calendar based spray schedule can reduce fungicide applications.
3. Determine the before and after effect of rolling frequency (0, 3X, 4X, and 6X per week) on soil compaction, thatch level and root density.
4. Determine the effect of rolling frequency on clipping yield (dry weight).

Material and Methods

Location and Equipment

The field trial was conducted at the University of Massachusetts, Joseph Troll Turfgrass Research Center (South Deerfield, MA) on creeping bentgrass and annual bluegrass mowed three times per week at fairway height (0.5 inches). The soil type was a sandy loam and irrigation was provided as needed. A Smithco (Ultra 10) fairway roller was used and Smithco has been very accommodating and is willing to loan a roller each year. Rolling treatment frequencies were applied as a 3x/wk, 4x/wk (double roll 2 days) and 6x/wk (double roll 3 days). Frequencies were chosen to maximize dollar spot control with an attempt to fit into daily golf course maintenance schedules.

2015 Materials and Methods

The plot was fertilized with 17-0-17 (1.0 N/1,000 ft²) on 9 June and rolling treatments were applied from 8 June-2 October in 2015. Application dates, fungicide rate and application order are listed in Table 2. Fungicide schedules are listed in Table 2. The calendar based spray program was initiated at the same time as the rolling treatments and the threshold spray program was initiated when an average of 5-dollar spot infection centers were observed on threshold plots (all rolling frequencies). Over the course of the study, dollar spot was assessed on a weekly basis by counting infection centers (14 total ratings). We also calculated Area Under the Disease Progress Curve (AUDPC), which uses data from all rating dates and evaluates

season-long dollar spot severity. Turf quality was assessed on two rating dates. Dollar spot incidence was the main force in influencing turf quality ratings. Rolling frequency had little to no effect on turf quality for most of the study. Rooting density was assessed before rolling treatments were initiated (3 June) and towards the end the study (2 September). Soil penetrometer readings were taken after the trial (2 October) to evaluate rolling treatments on soil compaction. Clipping yields were collected (22 September) from a 10" x 10" area in the center of plots following mowing without baskets. The plots had not been mowed for 4 days prior. Soil cores (2-inch width) were taken at the conclusion of the study (2 October). All green tissue was removed and the remaining soil core was dried down and baked in a muffle furnace at 500°C to eliminate all organic matter. The difference in weight was compared to determine organic matter %. All data presented in this summary report were subject to analysis of variance (ANOVA) and Fisher's Protected LSD was used for mean separation. The study was analyzed as 3 (fungicide regime spray schedule) x 4 (rolling frequency) factorial.

2015 Calendar and Threshold spray schedules and application dates.

Calendar Spray Schedule

Spray Date	Fungicide	Rate (oz/M)	Interval
June 8	Torque	0.6	---
June 29	Chipco GT	4.0	21 days
July 20	Secure	0.5	21 days
Aug 10	Xzemplar	0.26	21 days
Aug 31	Chipco GT	4.0	21 days

Threshold Spray Schedule

Spray Date	Fungicide	Rate (oz/M)	Interval
July 17	Torque	0.6	
Aug 26	Chipco GT	4.0	40 days

Results

2015 Dollar Spot, Rolling Frequency and Fungicide Programs

Dollar spot was first observed on 6 July, but we did not observe any significant differences among rolling frequency treatments until 3 August. Overall, dollar spot severity was moderate in 2015 and slow to develop in the early portion of the season. In total, significant differences were observed in 9 of 14 rating dates and for AUDPC within the main effect rolling frequency (Table 1). In general, less dollar spot was observed as rolling frequency increased and the 6x/wk rolling treatment reduced dollar spot 66% compared to the non-rolled frequency for season long control (Table 3). Significant differences were observed on every rating date and AUDPC among fungicide programs (Table 2). Except for two individual rating dates, the threshold spray program was statistically similar to the calendar program. This is not surprising, since both rating dates the calendar program outperformed the threshold program coincided with spray dates for the threshold program. Moreover, the threshold program required 3 less applications to achieve a statistically similar level of season-long control as the calendar

program. Lastly, significant differences were observed among the frequency*fungicide program interaction on 9 of the 14 rating dates and for AUDPC (Table 3). We were more interested in the frequency portion of the interaction, so rolling frequency was examined within each fungicide program (untreated, threshold and calendar). Of the rating dates that contained significant differences within the interaction, 9 of the 11 were observed among frequency within the untreated fungicide program and only 2 rating dates were observed in the threshold program. Simply put, the calendar and threshold programs reduced dollar spot so well, that there was little difference among the rolling frequencies. However, the abundance of statistically significant occurrences within the untreated allows us to determine exactly how much of an impact fairway rolling is having on dollar spot reduction. Overall, the 6x/wk rolling treatment reduced dollar spot significantly more than the 3x/wk on 6 of 10 rating dates and for season long control as well. The 6x/wk rolling treatment reduced dollar spot significantly more than the 4x/wk on 3 of 10 rating dates. We did have one rating date 40 days after the first application (Torque, 0.6 fl oz/1,000 ft²) in the threshold program in which we observed significant differences among rolling frequencies. The 6X/wk reduced dollar spot significantly more than the 3X/wk treatment and all rolling frequencies significantly reduced dollar spot more than the non-rolled (Figure 1).

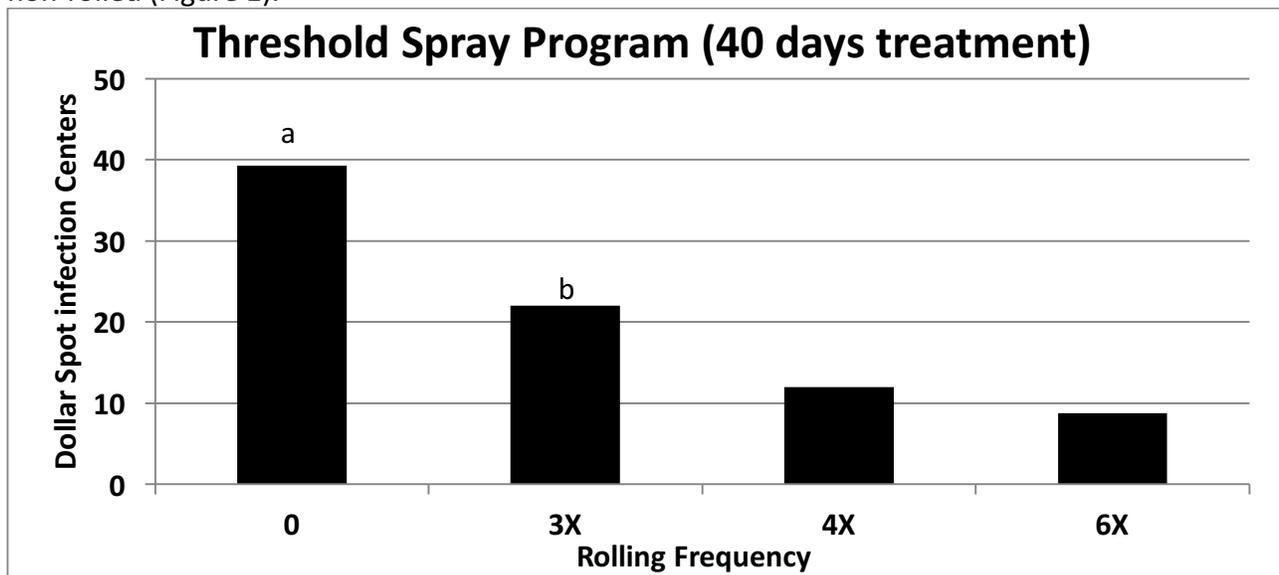


Figure 1. Dollar Spot infection centers 40 days after application of Torque (0.6 fl oz). Data collected on August 26, 2015.



2015 Turf Quality, Root Density, Compaction, Clipping Yields, Thatch

Significant differences in turf quality were observed on 2 October among rolling frequency for the threshold and calendar based spray programs. In both cases, the 6X/wk treatment had the lowest turf quality, however it was still at or above 6 for both fungicide programs (data not shown). Rooting density was assessed before rolling treatments were initiated (3 June) and towards the end the study (2 September). All treatments had similar root density levels during the 2 September sample date, thus indicating fairway rolling had no impact on turfgrass rooting. Soil penetrometer readings were taken after the trial (2 October) to evaluate rolling treatments on soil compaction. Soil penetrometer readings reported that the 4X/wk rolling treatments required the greatest effort to penetrate the soil and the 0X/wk, 3X/wk and 6X/wk were statistically similar. After the 2016 season, we plan to take soil samples and determine the bulk density after the study. Penetrometer readings were taken to non-destructively sample the plot. Clipping yields were collected (22 September) and a significant reduction in clipping yield was observed as rolling frequency increased. No significant differences in organic matter % between rolling frequencies were observed.

2016 Materials and Methods

The plot was fertilized with 17-0-17 (0.5 N/1,000 ft²) on 13 May and rolling treatments were applied from 2 June-15 September in 2016. Application dates, fungicide rate and application order are listed in Table 3. The calendar based spray program was initiated at the same time as the rolling treatments and the threshold spray program was initiated when an average of 5-dollar spot infection centers were observed on threshold plots (all rolling frequencies). Dollar spot was observed much earlier in trial (2nd week) and disease severity was much higher. Over the course of the study, dollar was assessed on a weekly basis by counting infection centers (13 total ratings) and calculated AUDPC for season-long dollar spot severity. Turf quality was assessed on two rating dates. Dollar spot incidence was the main force in influencing turf quality ratings. Rolling frequency did not decrease turf quality and slightly increased turf quality. Rooting density was assessed before rolling treatments were initiated (3 June) and towards the end the study (10 September). Undisrupted soil samples were collected after rolling concluded (10 November) and bulk density was determined. Soil organic matter in the top inch of the soil was determined to examine the effect of rolling on thatch degradation. All data presented from 2016 were analyzed using the same methods used for 2015 data.

2016 Dollar Spot, Rolling Frequency and Fungicide Programs

Dollar spot was first recorded on 8 June and began appearing earlier that week. This much earlier than the 2015 study and observations from other experiments suggest the timing of disease/rolling start date is critical. Overall, dollar spot incidence was limited in June and following turf recovery, extremely high dollar spot was observed from July until September. Significant treatment differences were only observed from rolling frequency for one rating date and the 3x/wk rolling treatment had significantly higher dollar spot than all other treatments (Table 4). Significant differences were observed on 9 of 13 rating dates and AUDPC among fungicide programs (Table 5). The threshold and calendar based programs were statically

similar on all rating dates. The threshold program required 2 less applications to achieve a statistically similar level of season-long control as the calendar program.

2016 Calendar and Threshold spray schedules and application dates.

Calendar Spray Schedule

Spray Date	Fungicide	Rate (oz/M)	Interval
June 4	Torque	0.6	---
June 30	Chipco GT	4.0	26 days
July 19	Secure	0.5	19 days
Aug 5	Xzemplar	0.26	17 days
Aug 26	Chipco GT	4.0	21 days

Threshold Spray Schedule

Spray Date	Fungicide	Rate (oz/M)	Interval
June 17	Torque	0.6	
July 5	Chipco GT	4.0	18 days
Aug 15	Secure	0.5	41 days

2016 Compaction, Turf Quality, Clipping Yields, Thatch

After the conclusion of the study, soil bulk density was measured from the threshold plots. No statistical differences were observed among rolling frequencies (Supplemental Table 6). A slight increase was observed between the 3X/wk and 6X/wk treatments compared to the untreated, however, these increases in soil bulk density are not likely to cause a biologically significant shift in soil structure. A significant increase in turf quality was observed on 27 July and all rolling frequencies had significantly higher turf quality. A similar increase in turf quality was also noted on 7 Sept, however the difference in turf quality was not significant (Table 6). Clipping yields were not collected for all treatments, because preliminary testing determined that dollar spot incidence severely influenced clipping yield measurements. No significant differences in organic matter % between rolling frequencies were observed (Table 6).

2017 Materials and Methods

The plot was fertilized with 17-0-17 (1.0 N/1,000 ft²) on 8 May and rolling treatments were applied from 8 May-28 September in 2017. Application dates, fungicide rate and application order are listed in Table 4. The calendar based spray program was initiated on 1 June and the threshold spray program was initiated when an average of 5-dollar spot infection centers were observed on threshold plots (all rolling frequencies) on 25 June. Over the course of the study, dollar was assessed on a weekly basis by counting infection centers (7 ratings) or by assessing the percentage of dollar spot infection (7 ratings). AUDPC was calculated for each rating method for season-long dollar spot severity. Turf quality was assessed on three rating dates and rolling frequency did not decrease turf quality and slightly increased turf quality.

2017 Dollar Spot, Rolling Frequency and Fungicide Programs

Dollar spot was first recorded on 16 June. This was earlier than 2015 and later than 2016, roughly 2 weeks for both years. Rolling was started 5 weeks before the first signs of dollar

spot were observed and was similar to the 2015 trial for rolling duration before dollar spot outbreak. Dollar spot incidence gradually rose throughout the season and infection counts were used until 21 Jul. Afterwards, percent dollar spot infection was used to assess dollar spot due to the large amount of infection. Significant differences were observed for the main effect rolling frequency on 6 rating dates (Table 7 and 8). The 6x/wk frequency was the most effective rolling frequency and was followed by the 3x/wk frequency. Overall, rolling provided a 40-60% reduction in dollar spot overall. There was a significant interaction between the main effects fungicide program and rolling frequency on 6 rating dates and rolling frequency was examined within each fungicide program (untreated, threshold and calendar). Of the rating dates that contained significant differences within the interaction, 6 were observed among frequency within the untreated fungicide program. Similar to 2015, the calendar and threshold programs reduced dollar spot so well, that there was little difference among the rolling frequencies. Overall, the 6x/wk rolling treatment was the most effective at reducing dollar spot and 3x/wk was more effective than the 4x/wk rolling frequency (Table 9). Significant differences were observed on 12 of 14 rating dates and AUDPC among fungicide programs (Table 10 and 11). The threshold and calendar based programs were statically similar on all rating dates, except for one (27-Sep). The threshold program required 2 less applications to achieve a statistically similar level of season-long control as the calendar program.

2017 Calendar and Threshold spray schedules and application dates.

Calendar Spray Schedule

Spray Date	Fungicide	Rate (oz/M)	Interval
June 1	Torque	0.6	---
June 20	Chipco GT	4.0	20 days
July 11	Secure	0.5	21 days
July 31	Xzemplar	0.26	17 days
Aug 20	Chipco GT	4.0	21 days
Sep 27	Xzemplar	0.26	38 days

Threshold Spray Schedule

Spray Date	Fungicide	Rate (oz/M)	Interval
June 17	Torque	0.6	
July 21	Chipco GT	4.0	34 days
Aug 16	Secure	0.5	26 days
Sep 27	Xzemplar	0.26	40 days

Conclusion

This three-year field study yielded a rollercoaster of results and provided a good insight on the level of dollar spot control that can be achieved with different rolling frequencies. 2015 and 2017 both showed that dollar spot can be reduced by 40-65% with proper rolling start time. Both trials started roughly 5 weeks before the first dollar spot epidemic. On the other hand, the 2016 trial was started less than 7 days before dollar spot was first observed and negative or minimal (12-23%) dollar spot control was observed. Overall, rolling is not a silver bullet for

dollar spot control, but shows considerable merit as a cultural practice that can reduce season long dollar spot by 50%.

Our analysis of fungicide programs suggests that fungicide usage can be reduced if a careful scouting and a threshold based spray program is used. We reduced fungicide applications by 2 or 3 applications per year with the threshold approach. Years with lower disease pressure will offer a greater chance for fungicide application reduction. Furthermore, careful monitoring of low nighttime temperatures, soil moisture, leaf wetness and using the new dollar spot forecasting model are important factors when considering a threshold based fungicide program on fairways.

Our results showed little impact on soil compaction despite rolling the 6X/wk 192 times over two years. Soil compaction was one of the main concerns superintendents had voiced prior to this work. Secondly, turf quality in 2016 was improved over the 2015 in rolled compared to non-rolled treatments, despite drought conditions and frequent high temperatures. We did not see any change in organic matter in the top inch of soil/thatch. We did see changes in where the thatch layer was composed. Rolling pushed the thatch layer down into the soil and created a firmer surface. The UMass research center has low thatch levels and we would like to further examine the potential for thatch reduction on golf courses with more substantial thatch layers. Clipping yield data in 2015 showed reduced clipping yields for rolling treatments.

Overall, rolling shows promise as an effective cultural practice to reduce dollar spot. Rolling start time is a critical factor for good dollar spot control. We recommend starting one month before you expect to observe dollar spot. A good method to track this each year is an untreated plot that helps you see the amount of dollar spot activity at your site. Rolling frequency should be maximized as much as possible. Our best results were with the 6x/wk rolling frequency. The 3x/wk and 4x/wk frequencies alternated for second most effective in 2015 and 2017. Lastly, we did not see any deleterious effects on turf quality and the rolled plots consistently had better turf quality.

Table 1. Effect of fairway rolling frequency on dollar spot infection centers, 2015.

Frequency	Dollar Spot Infection Centers ^z									
	3-Aug	17-Aug	24-Aug	26-Aug	31-Aug	10-Sep	17-Sep	25-Sep	2-Oct	AUDPC ^x
0	19 a ^w	27 a	45 a	56 a	51 a	52 a	52 a	38 a	45 a	2635 a
3X	12 ab	16 b	24 b	36 b	33 b	33 b	26 b	22 b	32 b	1593 b
4X	11 ab	14 b	26 b	32 bc	21 b	28 bc	20 bc	21 b	19 c	1368 bc
6X	6 b	8 b	14 b	21 c	17 b	18 c	14 c	15 c	18 c	906 c
<i>P</i> value	*	**	**	***	***	***	***	***	***	***

^z All fungicide program treatments were included for analysis (untreated, calendar and threshold programs).

^y Number of dollar spot infection centers per plot were reported as the mean of 4 replications.

^x Area under the disease progress curve were reported as a mean of 4 replications.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).

Table 2. Effect of fungicide programs on dollar spot infection centers, 2015.

Fungicide	Dollar Spot Infection Centers ^{z,y}													AUDPC ^x
	14-Jul	19-Jul	27-Jul	3-Aug	10-Aug	17-Aug	24-Aug	26-Aug	31-Aug	10-Sep	17-Sep	25-Sep	2-Oct	
Untreated	5 a ^w	11 a	14 a	37 a	35 a	49 a	78 a	89 a	81 a	97 a	82 a	72 a	83 a	4603 a
Calendar	0 b	2 b	0 b	1 b	3 b	0 b	3 b	0 c	1 b	0 b	0 b	0 b	0 b	48 b
Threshold	4 a	4 b	1 b	0 b	0 b	0 b	0 b	21 b	9 b	0 b	0 b	0 b	2 b	225 b
<i>P</i> value	**	**	***	***	***	***	***	***	***	***	***	***	***	***

^z All fairway rolling frequencies were included in the analysis (0, 3X, 4X and 6X).

^y Number of dollar spot infection centers per plot were reported as the mean of 4 replications.

^x Area under the disease progress curve were reported as a mean of 4 replications.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).

Table 3. Effect of fairway rolling frequency on dollar spot infection centers among untreated plots, 2015.

Frequency	Dollar Spot Infection Centers ^{z,y}										AUDPC ^x
	3-Aug	17-Aug	24-Aug	26-Aug	31-Aug	10-Sep	17-Sep	25-Sep	2-Oct		
0	58 a ^w	81 a	126 a	130 a	133 a	154 a	153 a	114 a	133 a	7424 a	
3X	36 b	49 b	67 bc	86 b	88 b	99 b	77 b	64 b	92 b	4470 b	
4X	33 b	43 bc	76 b	85 b	57 b	84 bc	59 bc	64 b	56 c	3927 bc	
6X	19 c	24 c	41 c	55 c	48 b	53 c	41 c	46 b	53 c	2592 c	
<i>P</i> value	*	**	**	***	***	***	***	***	***	***	

^z Only data from the untreated plots was used in this analysis.

^y Number of dollar spot infection centers per plot were reported as the mean of 4 replications.

^x Area under the disease progress curve were reported as a mean of 4 replications.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).

Table 4. Effect of fairway rolling frequency on dollar spot infection centers, 2016.

Frequency	Dollar Spot Infection Centers ^{z,y}													AUDPC ^x
	8-Jun	16-Jun	22-Jun	28-Jun	13-Jul	21-Jul	27-Jul	4-Aug	15-Aug	24-Aug	1-Sept	7-Sept	14-Sept	
0	7	15	10	9	16	30	28	50	57	58	67 b	82	73	3589
3X	2	9	6	4	22	53	55	78	89	87	110 a	118	94	5283
4X	3	5	4	3	8	20	24	35	60	45	53 b	65	66	2782
6X	2	4	2	2	12	31	28	53	53	56	58 b	74	63	3170
<i>P</i> value	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	*	NS	NS	NS

^z All fungicide program treatments were included for analysis (untreated, calendar and threshold programs).

^y Number of dollar spot infection centers per plot were reported as the mean of 4 replications.

^x Area under the disease progress curve were reported as a mean of 4 replications.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).

Table 5. Effect of fungicide programs on dollar spot infection centers, 2016.

Fungicide	Dollar Spot Infection Centers ^{z,y}													AUDPC ^x
	8-Jun	16-Jun	22-Jun	28-Jun	13-Jul	21-Jul	27-Jul	4-Aug	15-Aug	24-Aug	1-Sept	7-Sept	14-Oct	
Untreated	5	11	6	5	43 a ^w	100 a	101 a	161 a	169 a	183 a	206 a	243 a	223 a	10456 a
Calendar	1	0	0	0	0 b	0 b	0 b	0 b	0 b	0 b	0 b	0 b	0 b	17 b
Threshold	6	14	11	8	0 b	0 b	0 b	1 b	26 b	1 b	10 b	12 b	2 b	646 b
<i>P</i> value	NS	NS	NS	NS	***	***	***	***	***	***	***	***	***	***

^z All fairway rolling frequencies were included in the analysis (0, 3X, 4X and 6X).

^y Number of dollar spot infection centers per plot were reported as the mean of 4 replications.

^x Area under the disease progress curve were reported as a mean of 4 replications.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).

Table 6. Effect of fairway rolling frequency on soil bulk density, turf quality and organic matter (thatch), 2016.

Frequency	Bulk Density (g/cm ³) ^z	Turf Quality ^y		Organic Matter (Thatch) ^x
	2-Nov	27-Jul	7 Sept	14 Sept
0	1.32	5.1 b ^w	4.6	14.4%
3X	1.38	5.8 a	5.5	15.2%
4X	1.34	5.9 a	5.3	15.0%
6X	1.42	6.1 a	5.5	14.1%
<i>P</i> value	NS	*	NS	NS

^z Only the threshold fungicide program treatment was included for analysis. Bulk density is reported as a mean of 4 replications.

^y Turf quality was visually assessed where 1=dead, 6=acceptable, 9=dark green.

^x Soil organic matter in the top inch of the soil was determined to examine the effect of rolling on thatch degradation.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).

Table 7. Effect of fairway rolling frequency on dollar spot infection centers, 2017.

Frequency	Dollar Spot Infection Centers ^{zy}							AUDPC ^x
	16-Jun	19-Jun	23-Jun	6-Jul	11-Jul	18-Jul	21-Jul	
0	8 a ^w	20 a	25	25	58	76	92	1098
3X	0 b	1 b	10	8	24	35	55	410
4X	0 b	1 b	12	16	28	46	64	509
6X	0 b	0 b	4	8	15	13	28	211
P value	*	*	NS	NS	NS	*	NS	NS

^z All fungicide program treatments were included for analysis (untreated, calendar and threshold programs).

^y Number of dollar spot infection centers per plot were reported as the mean of 4 replications.

^x Area under the disease progress curve were reported as a mean of 4 replications.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).

Table 8. Effect of fairway rolling frequency on the percentage dollar spot infection, 2017.

Frequency	Percentage of Dollar Spot Infection ^{zy}						AUDPC ^x	
	31-Jul	10-Aug	16-Aug	24-Aug	30-Aug	14-Sep		27-Sep
0	18	12	15 a ^w	20	15	14 a	30 a	959 a
3X	9	7	8 bc	12	8	11 ab	30 a	664 b
4X	14	12	11 b	16	12	6 c	29 a	741 ab
6X	9	9	5 c	12	13	8 bc	21 b	618 b
P value	NS	NS	***	NS	NS	**	***	*

^z All fungicide program treatments were included for analysis (untreated, calendar and threshold programs).

^y Percentage of dollar spot infection per plot were reported as the mean of 4 replications.

^x Area under the disease progress curve were reported as a mean of 4 replications.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).

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Table 9. Effect of fairway rolling frequency on dollar spot infection centers and percent dollar spot infection within untreated plots, 2017.

Untreated	DSIC ^z		Percentage of Dollar Spot Infection ^y			AUDPC ^x
	18-Jul	16-Aug	14-Sep	27-Sep		
0	226 a ^w	41 a	38 a	70 a	5834 a	
3X	89 b	19 bc	31 ab	66 a	2778 b	
4X	131 ab	29 ab	19 c	68 a	3460 ab	
6X	37 b	14 c	24 bc	54 b	2329 b	
<i>P</i> value	*	**	*	***	*	

^z Number of dollar spot infection centers (DSIC) per plot were reported as the mean of 4 replications for 18 Jul rating date only.

^y Percentage of dollar spot infection per plot were reported as the mean of 4 replications for 16 Aug, 13 and 27 Sep rating dates.

^x Area under the disease progress curve were reported as a mean of 4 replications and calculated from dollar spot infection center and percentage of dollar spot infection.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).

Table 10. Effect of fungicide programs on dollar spot infection centers, 2017.

Programs	Dollar Spot Infection Centers ^{zy}							AUDPC ^x
	16-Jun	19-Jun	23-Jun	6-Jul	11-Jul	18-Jul	21-Jul	
Calendar	0	1	0 b ^w	0 b	0 b	0 b	0 b	13 b
Threshold	0	3	10 b	0 b	0 b	6 b	28 b	101 b
Untreated	6	13	29 a	42 a	94 a	121 a	152 a	1557 a
<i>P</i> value	NS	NS	***	***	***	***	***	***

^z All fairway rolling frequencies were included in the analysis (0, 3X, 4X and 6X).

^y Number of dollar spot infection centers per plot were reported as the mean of 4 replications.

^x Area under the disease progress curve were reported as a mean of 4 replications.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).

Table 11. Effect of fungicide programs on the percentage of dollar spot infection, 2017.

	Percentage of Dollar Spot Infection ^{zy}							AUDPC ^x
	31-Jul	10-Aug	16-Aug	24-Aug	30-Aug	14-Sep	27-Sep	
Calendar	2 b ^w	0 b	0 b	0 b	0 b	0 b	4 c	65 b
Threshold	0 b	0 b	3 b	1 b	1 b	1 b	15 b	128 b
Untreated	34 a	30 a	26 a	44 a	35 a	28 a	64 a	2044 a
<i>P</i> value	***	***	***	***	***	***	***	***

^z All fairway rolling frequencies were included in the analysis (0, 3X, 4X and 6X).

^y Percentage of dollar spot infection per plot were reported as the mean of 4 replications.

^x Area under the disease progress curve were reported as a mean of 4 replications.

^w Means followed by the same letter are not significantly different according to Fisher's protected least significant difference test ($\alpha = 0.05$).

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Getting to know the EIFG

The mission of the EIFG is: *The Environmental Institute for Golf fosters sustainability through research, awareness, education, programs and scholarships for the benefit of golf course management professionals, golf facilities and the game.*

But what does this mean to you as a turfgrass management professional? The EIFG works to position golf courses as contributors to the greater good of their communities, and act as professionally managed lands. Supporters of the EIFG know that they are encouraging programs and initiatives which will benefit the game and its environment well into the future. The EIFG works to make funding and resources available to support research, education, and environmental programs which make a constructive difference at facilities.

Research is obviously vital to any industry, turfgrass management included. Research through the EIFG dates back to 1955, when the EIFG was then known as the GCSAA Scholarship and Research Fund. Since that time, the EIFG and research has focused on a variety of topics, including disease management, water quality, as well as turfgrass and insect management to name a few. Many of the research trials have taken place in the Northeast region!

Continuing education is also a cornerstone of our profession. With technology ever changing, and new research being conducted, it's imperative turfgrass managers stay current with the latest trends in the industry. The EIFG recognizes the importance of continuing education and strives to provide opportunities for GCSAA members throughout the year. The Melrose Leadership Academy provides an option for GCSAA Class A and B members to attend the Golf Industry Show at no charge. The MLA is open to any GCSAA member who has been a five-year Class A or B member and who hasn't attended the GIS in the previous five years. New this year saw the introduction of the EXCEL Leadership Program. This three-year program is open to GCSAA Class C members and includes trips to the Golf Industry Show, GCSAA headquarters in Lawrence, Kan., and to the Nufarm facilities in Chicago, Ill. Just this year a dozen members of the Northeast region were benefactors of these great opportunities, 10 Melrose and 2 EXCEL.

Advocacy is another focus of the EIFG. With golf courses continuing to be under the eye of environmental groups and regulators, it's important our industry to band together to tell golf's positive story. Through the EIFG, funding was provided to help support the Best Management Practices Template and Guide, and provide information through the Golf Course Environmental Profile survey series; which both aid heavily in

our advocacy efforts. Scholarships were the backbone of the EIFG when it began in 1955, and continue to be a priority to this day. Currently there are scholarships awarded to turfgrass students and researchers, as well as additional scholarships for GCSAA members and their families.

This is just the tip-of-the-iceberg when it comes to the EIFG, and there are many ways you can get involved. Please consider donating to the EIFG, or participating in Rounds 4 Research. Each year R4R continues to grow, and new partnerships formed with The Golf Channel, GolfNow and Golf Advisor continue to expand this important program. This year's auction will coincide with 'Go Play Week' which will take place April 30-May 6. Chapters in the region have used funds to subsidize meeting costs, assist in building the BMP's, bring in educators for meetings, as well as provide member scholarships to name a few.

EIFG Fun Facts:

- The EIFG has funded more than \$5.5 million to support research, education and advocacy efforts since 2011.
- The EIFG has funded 457 scholarships and grants for children of GCSAA members, as well as professional development for superintendents since 2011.
- The EIFG has granted funds to GCSAA for more than 30 research projects, including the Best Management Practices and IPM Planning Guides.
- Since its 2012 launch, Rounds 4 Research has helped raise more than \$814,000 to benefit golf's future.
- The EIFG has created a Best Management Practices Grant Program for GCSAA chapters, distributing \$277,500 to 28 states since 2014.
- In 2017, GCSAA completed the second phase of the Golf Course Environmental Profile measuring change and progress.

GCSAA Resources and Deadlines **you Get Cool Stuff from your Association Already**

Equipment Management Videos

In an effort to build equipment management resources, GCSAA is seeking brief (3-7 minutes) educational videos that provide hands-on demonstrations for equipment managers, assistants and superintendents interested in learning more about equipment. This collection, called 5-Minute Fix videos, offer quick and simple solutions to equipment-related issues. [Watch and submit 5-minute fix videos.](#)

Call for nominations

Nominations are due by June 30, 2018

Posted on behalf of Peter J. Grass, CGCS – 2018 GCSAA Nominating Committee Chairman

The following offices will be up for election for the GCSAA Board of Directors at the 2019 Annual Meeting in San Diego, CA:

- President
- Vice president
- Secretary/treasurer
- Director (three positions)

The deadline for nominations for the 2019 GCSAA Board of Directors is June 30, 2018. Click [here](#) for more information

www.gcsaa.org/education/scholarships

Upcoming FREE webcasts:

May 30: [OSHA 101 How to Prepare for and Handle an OSHA Inspection or Whistleblower Investigation with an Update on the Agency's New Electronic Recordkeeping Requirements](#)
[Matthew Linton](#)

June 26: [Fertilización y Nuevas Tecnologías en la Nutrición de Campos de Golf](#)
[José Ángel Sánchez Alcalá](#)

Again, if I can be of any assistance, please feel free to contact me.

Kevin Doyle

GCSAA Field Staff

kdoyle@gcsaa.org

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GCSAA Scholars Competition

These scholarships range from \$500 to \$6,000. Applicants must be enrolled in a recognized undergraduate program in a major field related to turf management, have completed at least 24 credit hours or the equivalent of one year of full-time study in the appropriate major, and be a member of GCSAA. Deadline June 1st.



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