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ABOUT THE COVER

Portrait Artist Beverly Bergemann gives us a cover featuring Dustin Riley, WGCSA President.

"Perhaps the most serious mistake by a golf committee is the fallacy that they will save money by neglecting to obtain expert advice in regards to fresh construction work."

— Dr. Alister MacKenzie
"Golf Architecture" 1920

THE GRASS ROOTS

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Ahh, Here We Go...

By **Dustin Riley**, Certified Golf Course Superintendent, Oconomowoc Golf Club



Winter *should* be leaving us soon. Mother Nature has definitely provided a winter that many of us will not forget for some time. Personally, I am sick of plowing and shoveling snow every 3 days. Most of us utilize winter as a time to prepare and re-energize for the upcoming season. But this never ending snow is exhausting.

Several freeze-thaw cycles, January rains and the subsequent ice accumulation have started to create a little anxiety in the back of our minds. Hopefully spring arrives in an orderly fashion and we can finally begin the cleanup process and assess the health our turf areas.

Nevertheless, spring will be here and there's a lot to get excited about. How about the smell of the 1st mowing of the year? That's one of my favorites. Another is the placement of all of the re-furbished ball washers, benches, flags and other course supplies. I love that "new" look, for at least 1 month or so until a member slams his \$500 driver into a tee marker, or a bird deposits their last meal onto the clean bench boards, or the first dandelion head pops up. Then I think...Ahh, here we go...

The 2008 WGCSA event calendar is pretty well set and we are anticipating a great year of education and meeting sites. Developing the monthly meetings, educational opportunities, tracking governmental and environmental concerns requires some effort from each of the respective committees. We are always searching for individuals interested in helping out on any of the committees. So, if anyone is interested or even has a curiosity about getting involved in the Association, I invite you contact the Board of Directors to discuss. Good help and great ideas are always welcome.

The Board of Directors continually considers opportunities to help the Association's services progress and improve. We will be implementing a change to our mailing communications later this year. Many of our employers and other business contacts have already changed their communications from paper to electronic. We, too, will be going "paper-less". Don't worry, the Grass Roots will still be provided in its award winning form. This process will take a little time to convert and will include a period in which both methods are used until things are running smooth. Once implemented, each member will receive an email alert of an

update (job posting, meeting announcement etc.) and that the information can be found at WGCSA.com. Therefore, each member will need a valid email address. If you do not have an email address, you can acquire one from the following websites at no cost: Yahoo.com or Hotmail.com. There are probably several other sites that provide free email. Directing this information through the website will increase the use of our website's value such as the forum, equipment sales and employment notices. Going "paper-less" will eventually save the Association thousands of dollars annually in mailing and stationary costs.

I'd like to thank all of our vendor sponsors that assisted in the success of our events throughout the year. Due to the birth of my 2nd daughter, I was unable to attend this year's GIS and Wisconsin Room in Orlando. I understand the Wisconsin gathering was well attended and enjoyed by all. Vendor support is key in that success. Please thank those industry partners that have contributed to the success of all of WGCSA affairs. Maintaining a positive partnership with our industry partners can only make this association stronger and more beneficial to everyone involved.

Our next meeting is scheduled for Monday, April 21st at Geneva National in Lake Geneva. See you there. ♻



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Tenacity™ Emerges as a New Herbicide for Turfgrass Establishment



By Dr. John Stier and Eric Koeritz, Department of Horticulture, University of Wisconsin-Madison

In February 2008, Tenacity was labeled for use on golf courses and sod farms in Wisconsin. The active ingredient is mesotrione, a compound with origins from the bottle brush plant. Its low use rate and low environmental toxicity place are cause for it to be considered as a reduced risk herbicide. Mesotrione is classified as a plastoquinone inhibitor, which affects numerous biological processes in plants such as carotenoid (pigment) production. The result is usually whitened plants as chlorophyll production is inhibited (Fig. 1). Additional information on the origin and environmental aspects of mesotrione can be found in Stier, 2004.

Mesotrione was primarily thought of as a post-emergent herbicide, and indeed its label includes post-emergent applications. However, earlier research indicated its potential for use as a pre-emergent herbicide during turfgrass establishment. Currently siduron is the only herbicide that can be used at time of seeding cool-season turfgrasses. However, siduron has a use rate measured in oz per thousand square feet compared to mesotrione's use rate of oz per acre, and has a greater environmental risk than mesotrione. While we've been evaluating mesotrione for potential turf use for at least four years, 2007 was the first time we tested its potential to be used as a pre-emergent herbicide at time of seeding.

How we did it

We set up a field study at the O.J. Noer Turfgrass Research and Educational Facility in Verona, WI, on a silt loam soil with pH approximately 7.8. The experimental



Fig. 1. Pre-emergent application of mesotrione causes bleaching of yellow nutsedge as it emerges, resulting in effective weed control during turf establishment.

design was a randomized strip-block with four replications. Perennial ryegrass and a 3 way mix 'Madison Parks' were planted in strips across each replication so that half of each herbicide treated plot was seeded to perennial ryegrass and half was seeded to the 3 way mix. Individual grass/herbicide plots measured 5 ft x 5 ft. A one foot border was left between each area treated with herbicide to eliminate the effects of overspray.

The perennial ryegrass cultivars were Harrier (34.7%), Peregrine (34.13%), and SR4600 (28.6%). The Madison Parks mixture had Kentucky bluegrass (KBG), perennial ryegrass, and fine fescues: Odyssey KBG (10%), Arcadia KBG

(5%), Mercury KBG (5%), SR2100 KBG (5%), America KBG (5%), Cannon KBG (10%), Wild Horse KBG (10%), SR5210 creeping red fescue (15%), Boreal creeping red fescue (10%), SR4550 perennial ryegrass (15%), and Cutter perennial ryegrass (15%). Grass strips were seeded using a drop spreader on 17 May. The 3 way mix was seeded at a rate of 4 lb seed/1000 ft² and the perennial ryegrass was seeded at a rate of 7 lbs seed/1000 ft². Starter fertilizer was applied at a rate of 1 lb P₂O₅/1000 ft² just prior to seeding. The grass seed was lightly raked in following seeding and herbicide treatments were applied over the dried soil and seed.

Herbicide treatments were applied using a CO₂ powered backpack sprayer at 42 PSI tank pressure with a 3 nozzle spray boom capable of spraying a 5 ft swath. Nozzles used were XR TeeJet 8004VS nozzles. All treatments were applied in water equivalent to 1 gal/1000 ft². We covered the entire study area with Futerra® erosion control blankets and applied 1/2 inch water using an automatic in-ground irrigation system. For the remainder of the establishment period irrigation was supplied 5 times per day for 2 minutes each time. We mowed the plots for the first time on 13 June. Two treatments received sequential applications on 14 June (Table 1). The second herbicide treatment was given 2 hours to dry on the leaf surface before being watered in with 1/2 inch of water. Afterwards, irrigation was supplied once weekly to replace 100% of the estimated evapotranspiration rate.

We evaluated phytotoxicity to turf and percent turf cover at 1, 2, 3, 4, 6, and 8 weeks after seeding. Turfgrass phytotoxicity was rated on a scale from 1-10 where 1=no phyto, 10=totally dead, and >3=unacceptable. Percent cover was rated on a scale from 0-100% where 0=bare soil, and 100=dense healthy turf. Percent control of various weeds was rated at 2, 3, 4, 6, and 8 weeks after treatments. Weeds rated included broadleaf weeds, crabgrass, and yellow nutsedge. The percentage of weeds in each plot was estimated visually and percent control was calculated by dividing the percent of weeds in treated plots by the percent in the control plot for that replication, multiplying the dividend by 100, and subtracting the product by 100.

What we found

The only significant injury to turf occurred with the highest rate of mesotrione tested, 4 oz a.i. per

Table 1. Treatment list for evaluating mesotrione as a pre-emergent herbicide at time of seeding cool-season turfgrass mixtures, Verona, WI, 2007.

Trt #	Trtreatment	Rate(oz a.i./A)	Timing
1	Mesotrione 4 SC [†]	2.5	Seeding
2	Mesotrione 4 SC	3.0	Seeding
3	Mesotrione 4 SC	4.0	Seeding
4	Siduron	48.0	Seeding
5	Mesotrione 4 SC	2.5 + 2.5	Seeding + 1 st mowing
6	Mesotrione 4 SC	3.0 + 3.0	Seeding + 1 st mowing
7	Untreated Control		

[†]Non-ionic surfactant was added to all mesotrione treatments at 0.25% v/v.

Table 2. Effect of herbicide treatment on turfgrass phytotoxicity. Rating scale: 1-10 where 1=no phyto, 10=totally dead and >3=unacceptable. Verona, WI 2007.

Treatment	Rate(oz a.i./A)	25 May	31 May	7 June	14 June
1. Mesotrione 4 SC [†]	2.5	1.1 b	1.1 b	1.1 b	1.0 b
2. Mesotrione 4 SC	3.0	1.0 b	1.0 b	1.3 b	1.1 b
3. Mesotrione 4 SC	4.0	4.5 a	4.9 a	5.9 a	4.1 a
4. Siduron	48.0	1.0 b	1.0 b	1.1 b	1.0 b
5. Mesotrione 4 SC	2.5 + 2.5	1.4 b	1.2 b	1.0 b	1.0 b
6. Mesotrione 4 SC	3.0 + 3.0	1.3 b	1.0 b	1.1 b	1.0 b
7. Untreated Control		1.0 b	1.0 b	1.0 b	1.0 b
LSD (0.05)		0.47	0.82	0.66	0.39

Means followed by the same letter are not significantly different at P ≤ 0.05.

Table 3. Interaction between herbicide treatment and grass type on percent turf cover. Rating scale: 0-100% where 0=bare soil, 100=healthy dense turf. Verona, WI 2007.

Trtreatment	Rate(oz a.i./A)	Grass Type	% Cover	
			31 May	9 July
1. Mesotrione 4 SC	2.5	Perennial Rye	30.0 ab	100.0 a
2. Mesotrione 4 SC	3.0	Perennial Rye	27.5 bc	100.0 a
3. Mesotrione 4 SC	4.0	Perennial Rye	15.0 d	92.0 c
4. Siduron	48.0	Perennial Rye	26.3 c	100.0 a
5. Mesotrione 4 SC	2.5 + 2.5	Perennial Rye	31.3 a	100.0 a
6. Mesotrione 4 SC	3.0 + 3.0	Perennial Rye	28.8 abc	100.0 a
7. Untreated Control		Perennial Rye	31.3 a	99.3 ab
1. Mesotrione 4 SC	2.5	3 way mix	6.3 e	97.3 ab
2. Mesotrione 4 SC	3.0	3 way mix	6.3 e	98.5 ab
3. Mesotrione 4 SC	4.0	3 way mix	2.8 f	76.3 d
4. Siduron	48.0	3 way mix	6.3 e	97.3 ab
5. Mesotrione 4 SC	2.5 + 2.5	3 way mix	6.3 e	98.3 ab
6. Mesotrione 4 SC	3.0 + 3.0	3 way mix	6.3 e	98.0 ab
7. Untreated Control		3 way mix	7.0 e	94.5 bc
LSD within TRT			5.48	2.57
LSD among TRT			2.66	4.63

Means followed by the same letter are not significantly different at P ≤ 0.05.

acre (Table 2). The 2.5 and 3.0 oz a.i. per acre rates did not cause essentially any phytotoxicity, similar to siduron. The split-shot applications also did not cause injury, even though the second application was made to young turfgrass less than one month old.

Phytotoxicity from the high rate

of herbicide appeared to be related to the amount of perennial ryegrass in the turf stand. Our results showed perennial ryegrass was damaged by the high rate of mesotrione, but turf cover was still good seven weeks after seeding (Table 3). In fact, Table 3 shows plots seeded to only perennial ryegrass

grass had faster turf cover than the plots seeded to the 3-way mixture due to the rapid establishment rate of perennial ryegrass compared to Kentucky bluegrass and fine fescue. Some of our other research indicated that fine fescues may also be susceptible to phytotoxicity from mesotrione, but effects are transient (data not shown). In fact, the label for Tenacity notes that it should be used cautiously when applied to young stands of fine fescue. Phytotoxicity was observed as a lack of germination, bleached or purple color to the turf, and reduced growth. Some researchers have reported injury to annual bluegrass, and indeed this is noted on the label.

All rates and timings of mesotrione performed well at controlling broadleaf weed populations (Table 4). Broadleaf weed control sometimes resulted in better turf cover because the grass didn't have to compete with the weeds. Yellow nutsedge was controlled at or near 100% by mesotrione, while control by siduron was only about 50% (data not shown). In some of our other studies, mesotrione has adequately controlled crabgrass when applied as a pre-emergent herbicide, however, there wasn't enough crabgrass in this particular study to document crabgrass control.

Conclusion

Mesotrione appears to be sufficiently safe for use when establishing Kentucky bluegrass, perennial ryegrass, and mixtures containing Kentucky bluegrass, perennial ryegrass, and fine fescues. Additional work is needed to determine its safety on fine fescues alone, both at time of seeding and on established turf, particularly for different fine fescue species as well as cultivars. A label for lawn turf may be forthcoming in the next year or so.

References

Stier, J. New chemistry for selective control of creeping bentgrass. *The Grass Roots* 33(6):4-5, 7. 

Table 4. Effect of herbicide treatment on broadleaf weed control. Rating scale: 0-100% where 0=no reduction in weeds compared to the control, 100=no broadleaf weeds. Verona, WI 2007.

Trtreatment	Rate(oz a.i./A)	31 May	14 June	9 July
1. Mesotrione 4 SC [†]	2.5	79.2 a	87.5 a	75.0 a
2. Mesotrione 4 SC	3.0	100.0 a	87.5 a	87.5 a
3. Mesotrione 4 SC	4.0	100.0 a	100.0 a	100.0 a
4. Siduron	48.0	68.8 ab	87.5 a	75.0 a
5. Mesotrione 4 SC	2.5 + 2.5	100.0 a	100.0 a	100.0 a
6. Mesotrione 4 SC	3.0 + 3.0	100.0 a	100.0 a	100.0 a
7. Untreated Control		37.5 b	50.0 b	0.0 b
LSD (0.05)		38.94 b	31.04	28.46

Means followed by the same letter are not significantly different at $P \leq 0.05$.



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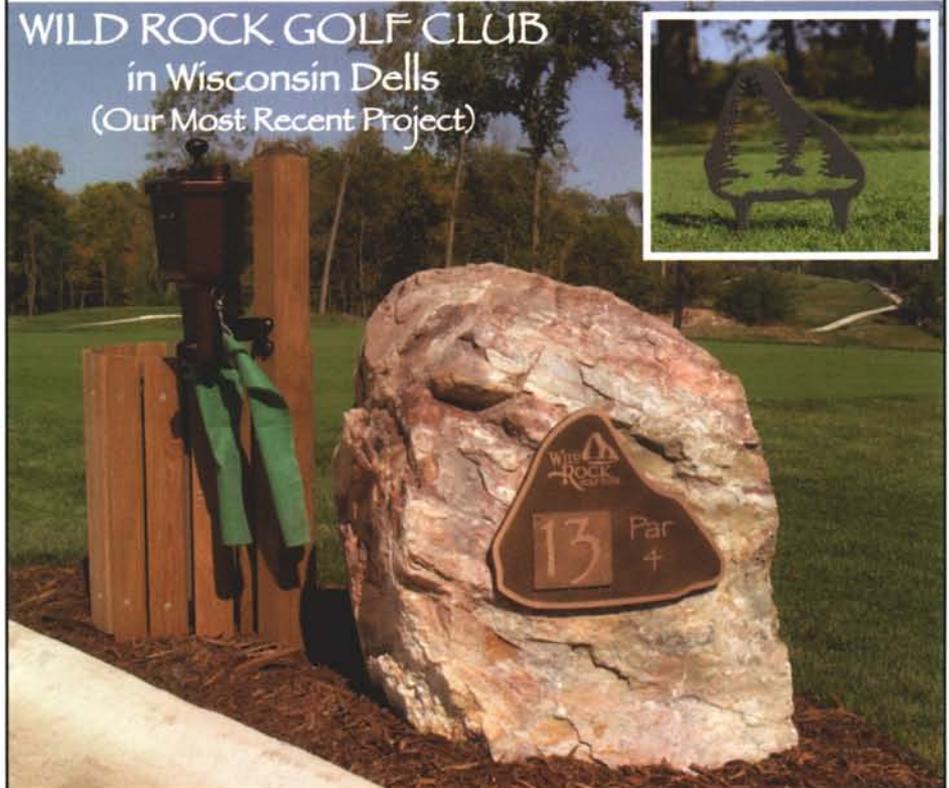
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Noernet Begins 10th Year

By Tom Schwab, O.J. Noer Turfgrass Research and Education Facility, University of Wisconsin-Madison

April 2008 marks the 10th anniversary of Noernet. Serving the turf industry of Wisconsin. Where have the years gone! For those unfamiliar with Noernet, it is an automated electronic list that serves as an "email discussion group" for turf professionals. Subscribers share information that helps them in their work. Discussion have included landscape construction projects, turfgrass selection, pest alerts, solutions to pest problems, equipment or tool choices, sale of used equipment, educational event announcements, university research results, government regulations, management solutions, and other topics.

The way it works is any subscriber may write a turfgrass management related question, concern, or comment to the Noernet email address. All subscribers will receive that message and may send a reply back if they choose. Everyone will see that reply and again have the option to respond with additional information. Some subscribers are extremely active and respond to many

messages. Others never write messages and only read Noernet to keep an eye on what is happening around the region. You may participate as much or as little as you like. There are also many topics discussed across professions. For instance, a sport field manager or sod producer may ask questions to lawn care providers and golf course superintendents, and vice versa. We all belong to one important industry that is being brought closer together by sharing information.

Noernet presently has 170 subscribers from golf courses, sod farms, sports fields, lawn care companies, and turf businesses. Most are from Wisconsin, while others come from Michigan's Upper Peninsula, eastern Minnesota, and northern Illinois. Several Minnesota superintendents have inquired about expanding Noernet to all of Minnesota. Soon there may be many more turf professionals from which to gather expertise.

Noernet is meant for local use and concerns. There are

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many national discussion groups but Noernet is intended for turf care professionals in Wisconsin and neighboring states. We are better able to discuss topics unique to our upper Midwest region by keeping it local. Noernet is also a private list. It is not meant for homeowners, media, or any individuals outside of the turf profession.

If you think that sharing of information is an important tool for turf management, then Noernet is one more tool available to you. Let your peers know about this service if you feel they could benefit. Instructions for subscribing and participating in Noernet are written below.

The University of Wisconsin-Madison sponsors this electronic discussion group. They have set an appropriate use policy which includes:

- You may not use Noernet for uses that are forbidden by the University of Wisconsin campus telephone or paper mail system.
- Noernet is not to be used for personal purposes or gain.
- Do not send abusive, vulgar, harassing, or bigoted messages.
- It is the policy of the University of Wisconsin-Madison Board of Regents that Noernet be used primarily for purposes of fulfilling the University's mission of teaching, research, and public service.
- Content of all postings are that of the contributing author and not necessarily of the Noernet list owner, moderator, or of the University of Wisconsin-Madison, Division of Information Technology.

How to Subscribe to Noernet

1. Log onto the Noernet web address: https://lists.wisc.edu/read/all_forums/subscribe?name=noernet using Netscape, Internet Explorer, or a similar web browser.
2. This takes you to the WiscList page where you type your email address and name in the blanks provided. You may also enter a password but that is optional. You do not need a password, so enter one only if you really want one. If you forget your password, you can find it again through the website.
3. Next hit the subscribe button.
4. It may take a day before I can post your name to the list after you sign up — so be patient.
5. You may email or call me if you have any questions or problems with Noernet at tgschwab@wisc.edu or 608-845-6895.

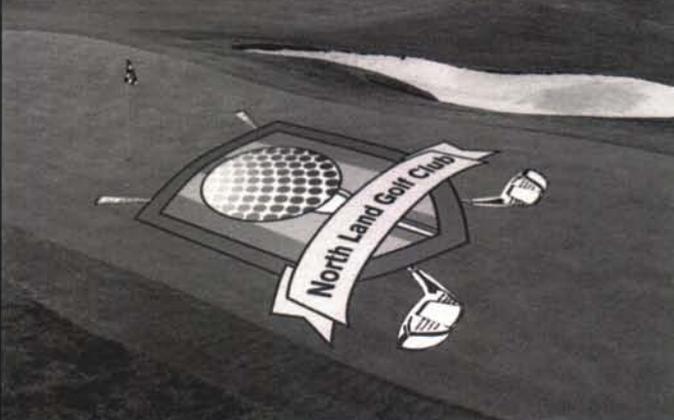
How to Participate in Noernet

1. The easiest way to participate in Noernet is to send an email to Noernet@lists.wisc.edu, just like you normally send emails. You will receive all Noernet messages at the email address that you used to subscribe.
2. Remember that if you reply back to a message, all subscribers will see your response. If you want to

send a personal reply, just to one person, then cut and paste their email address from the Noernet message into a separate email. But active participation of subscribers is what Noernet is all about as long as messages are thoughtful, productive, and follow the rules outlined above.

3. Another nice feature of Noernet is you are able to look at the past 180 days of messages. Follow the instructions in #4 to open the archive page.
4. The other way to participate in Noernet is from the web address -<https://lists.wisc.edu/read/login/?go=https://lists.wisc.edu/read/?forum%3Dnoernet> Type this address into your browser. This will take you to the WiscList page where it'll ask for your email address. Another box will ask for your password, but most of you don't have passwords, so next click the OK button to open the Noernet page. That page shows 180 days of archived Noernet messages, and also has a 'Create New Message' button for sending messages. Always remember to write a topic in the subject area when you send a new message. 🌱

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