

CUTT

2011 Issue 1 • Volume 22 • Number 1

The Child Safe Playing Fields Act: NY's Ban on Pesticide Use on School and Day Care Center Grounds

By now you've probably heard that a new law in New York State essentially bans pesticide use on the grounds of schools and day care centers. It is commonly called the *Child Safe Playing Fields Act*. The law exempts a few pesticide uses (very few), and includes a process for requesting permission to make emergency applications. Though many of you have already curtailed your pesticide use for budgetary or policy reasons, others will have to find alternative ways to prevent and deal with their pest problems. This mandate is sure to usher in renewed emphasis on good cultural practices and field management. Sounds like time to go back to the basics of IPM...

First, let's review the letter of the law. You can see the full text at <http://public.leginfo.state.ny.us/menugetf.cgi?COMMONQUERY=LAWS> (Education Law 409-k for schools; Social Services Law 390-g for day care centers). The Department of Environmental Conservation (DEC)

has written guidelines for alternative management of turf—as mandated by the law—but has no role in enforcement. At the time of writing, the draft guidelines had been released, and should be finalized by now. Check the DEC web site <http://www.dec.ny.gov/chemical/41822.html>. The following questions and answers should help you understand the implications, and prepare to live under the new law.

What areas are affected?

"No school or day care shall apply pesticide to any playgrounds, turf, athletic or playing fields." The DEC guidelines further clarify that playground equipment is included, and that family day care centers are exempted. Pesticides used inside of schools, or to protect a structure, are not banned. It remains unclear whether ornamental plants such as trees, shrubs and flowers are included.

This Times

1. **The Child Safe Playing Fields Act**
2. **Clippings**
John Reid Award
GSANY Environmental Stewardship Award
5. **NYSTA Offers Distance Learning**
6. **Calendar of Events**
8. **Civitas and Primo**
13. **Winning Fields, Winning Fairways**
14. **Winning Fields Seminar**
20. **Healthy Ecosystem Influence Nitrogen Application Rate on the Extent of Nitrogen Leaching**



Proudly supported by the
New York State Turfgrass Association.

CUTT, "CORNELL UNIVERSITY TURFGRASS TIMES" is published four times per year by the Turfgrass Science Program at Cornell University, Ithaca, New York 14853. Address correspondence to: CORNELL UNIVERSITY TURFGRASS TIMES, 20 Plant Science Building, Cornell University, Ithaca, NY 14853; phone: (607) 255-1629; email: fsr3@cornell.edu.

Editor: Frank S. Rossi, Ph.D.

Design & Production: NYS Turfgrass Assn.
Latham, NY

Cornell University is an equal opportunity, affirmative action educator and employer.

CUTT is copyright © 2011 by Cornell University. All rights reserved. Permission to reproduce any material contained herein must be obtained in writing.

The use of product names or trademarks in this newsletter or by Cornell University does not imply any endorsement of such products.

continued on page 3

CUTT

Clippings

John Reid Lifetime Achievement Award Presented to NYSTA

NYSTA was the recipient of the John Reid Lifetime Achievement Award at the 2011 MetGCSA Winter Seminar Awards Luncheon at Westchester Country Club. The MetGCSA Awards Committee Chair Matthew Ceplo, CGCS presented the prestigious

award to the NYSTA delegates. In attendance were Greg Chorvas, NYSTA's President; Elizabeth Seme, NYSTA's Executive Director and Michael Maffei, CGCS, NYSTA's Metropolitan Director.

This is the first time that this award was given to an organization. The John Reid Lifetime Achievement Award is traditionally given to an individual. In the MetGCSA newsletter Tee to Green it was explained that NYSTA was given the award because, "Since its inception 60 years ago, NYSTA has shown great dedication and commitment to the turfgrass industry through its advocacy and support."



NYSTA delegates (left to right) Elizabeth Seme, Executive Director; Michael Maffei, CGCS, NYSTA Metropolitan Director and Greg Chorvas, NYSTA President receive the John Reid Lifetime Achievement Award from (right) Matthew Ceplo, CGCS, MetGCSA Award Committee Chair, at the MetGCSA Winter Seminar Awards Luncheon.

Matthew Ceplo Awarded 2011 GSA New York Environmental Stewardship Award

Matthew J. Ceplo, CGCS, NYSTA member and golf course superintendent at Rockland Country Club in Sparkill, New York was this year's recipient of the 2011 GSA New York Environmental Stewardship Award.

Environmental Day celebration in Rockland County, New York on May 15, hosted by the Rockland County Solid Waste Management Authority (RCSWMA). The 2011 GSA New York Environmental Stewardship Award was presented at the closing ceremonies by GSA New York Team Captain Kevin Trotta.

"Matt has distinguished himself as a pioneer, a practitioner/researcher and a leader in the progressive management of the golf course. He points the way to the future of the game by maintaining the social and economic integrity of the golf course while resolutely defending environmental quality. His many years of involvement and promotion of Audubon International's Cooperative Sanctuary Program and his pursuit of sustainable practices have earned him the respect of his industry and the respect of GSA New York," said Trotta.

Global Sports Alliance (GSA) is a global network of sports enthusiasts that want to leave a healthy environment for future generations. Presented

annually, the New York Environmental Stewardship Award is "given to an individual who demonstrates an exceptional commitment to protecting the environment in the management of a recreational or sports venue."

GSA participated in the



Matthew Ceplo, CGCS, with award and Global Sports Alliance New York Team Captain Kevin Trotta

Feature Story

continued from page 1

When did the ban take effect?

November 14, 2010 for day care centers and May 18, 2011 for schools.

What pesticides are included, and are there any exceptions?

Pesticides are substance intended to prevent, destroy, repel or mitigate pests. They include insecticides, fungicides, herbicides and plant growth regulators. All are banned by this law, with these exceptions:

1. Antimicrobials such as bleach.
2. Aerosol sprays to protect from imminent danger from stinging or biting insects
3. Insect and rodent baits in non-volatile containers
4. Products containing boric acid or disodium octaborate tetrahydrate
5. Horticultural oils and soaps
6. EPA exempt pesticides or minimum risk pesticides are not registered by EPA because they are generally regarded as safe. They include corn gluten meal, garlic, and many plant-derived oils. More info at http://www.epa.gov/oppbppd1/biopesticides/regtools/25b_list.htm.

Are exemptions available for emergencies?

Yes. A public school can seek permission for an emergency application from their school board. Non-public schools and day care centers ask the Department of Health in the case of emergencies that threaten public health, or the DEC for those affecting the environment. Although the law does not indicate what might be construed as an "emergency", the DEC Guidance offers the following. Emergencies are:

- one time situations, not routine or repetitive problems;
- cannot be managed with allowable pesticides or alternative practices; and
- are not for aesthetic purposes.

Where do we go from here?

With the basics of the law established, let's move onto how you will manage without pesticides. Many of you already manage your schools with few or no pesticides, and we encourage you to share your successes with your peers. The basics of good turfgrass and field management are more important than ever.

1. Overseed, a lot!
2. Irrigate—at least your high priority fields
3. Keep field use at a reasonable level
4. Maintain good field fertility levels
5. Mow at as high a height as your grass and sport will allow

Looking at the sunny side of this situation, now is a good time for you to reestablish these priorities for yourself, staff, school board, coaches, athletes, and outside community groups. When the school board asks how you're going to handle the new law, tell them your cultural management strategies, and that you need more seed, more staff, a water cannon, more practice fields—whatever it is that you do need. Discussion of the law can open up new avenues of conversation that may have been shut for years, giving you an opportunity to demonstrate your professional knowledge.

CUTT

Discussion of the law can open up new avenues of conversation that may have been shut for years, giving you an opportunity to demonstrate your professional knowledge.

CUTT

Make a plan to optimize cultural management of your fields and lawns, and COMMUNICATE it to others. Be sure to involve your staff, coaches, players, teachers, parents, school board and other interested community members.

Are there problems I won't be able to handle without pesticides?

That's a loaded question. Theoretically, you should be able to keep a dense stand of healthy turfgrass if you overseed heavily, have water when needed, and are able to rotate play to alternate fields as needed. However, most schools don't have enough fields to keep the traffic on the game fields at acceptable levels, and often aren't successful in keeping play off of wet fields. These problems need to be addressed at their root cause. An occasional emergency herbicide application will not solve these issues, and would not meet the intent of "emergency application" according to the DEC Guidance Document.

White grubs, poison ivy, and several species of invasive plants may also pose problems. Currently, the only hope for non-pesticidal control of grubs is the use of beneficial nematodes—a costly solution with inconsistent results. Arguably, a high population of grubs that decimates turfgrass roots, thereby wreaking havoc on the footing for student athletes, can be a safety issue. Does that warrant an "emergency pesticide application"? Each school board will be the judge. Likewise, high populations of weeds in a playing field provide poor footing. However, I believe they are more likely to be considered a "routine or repetitive pest problem" that does not qualify as an emergency, according to the DEC Guidance.

Keeping poison ivy and many other invasive plants in check won't be easy. Physical removal along with the potential use of alternative, allowable herbicides containing acetic acid, citric acid, or plant-based oils will help. Minimizing preexisting levels, as discussed above, may also be critical for success.

How can I best prepare for managing my playing fields and lawns without pesticides?

1. Review your historical and potential pest problems, and generate plans to prevent and manage them.
2. Make a plan to optimize cultural management of your fields and lawns, and COMMUNICATE it to others. Be sure to involve your staff, coaches, players, teachers, parents, school board and other interested community members.
3. Decide which problems would constitute an "emergency" in your opinion, and present them to your school board, health department or DEC (as appropriate) in advance. This should encourage thoughtful discussion and consideration before a crisis arises. It will also alert you as to what their concerns may be, and better prepare you for requesting an emergency application if the need arises.

Conclusions

The limitations created by the *Child Safe Playing Fields Act* will likely change how you do business, in either small or large ways. It's up to you to make the changes be positive. Make your playing fields even better than before. Educate your school board and your community. Turn your grounds crew into plant health managers.

*Jennifer Grant, Ph.D.,
Cornell University*

NYSTA Offers New Distance Learning for NYS DEC Recertification Credits

Dear Green Industry Professional:

The New York State Turfgrass Association is pleased to announce that we now offer long distance learning education for acquiring New York State DEC pesticide recertification credits, ISA CEUs and GCSAA Education Points. Our new Take It with You – NYSTA Education Series includes DVDs and CDs for those of you who can't attend conferences or workshops and need to earn credits. This convenient format allows you to learn from your office or home at the times that best fit your schedule.

The Take it with You series features outstanding education sessions professionally recorded at our annual and regional conferences. NYSDEC has awarded credits for all course material.

Order your Take it with You course at www.nysta.org, or by phone (518) 783-1229. Upon payment your course materials will be sent to you. After watching the DVD or listening to the CD, follow the instructions provided to receive your certification. For additional information and details about all requirements for distance learning click here.

Be sure to take advantage of this exceptional opportunity to earn credits at your convenience!

How to use the Take It With You - NYSTA Education Series

1. Order a course on DVD or CD directly on-line, contact our office at (518) 783-1229 and order over the phone, or print our PDF registration form and order via fax or mail.
2. Once your order is received and processed in our office we will send you the DVD and CD course(s) you requested.
3. View the DVD or listen to the CD in their entirety. Look or listen for verification codes placed randomly

throughout the presentations and write them in order as they are given. You will need these codes later to verify the entire presentation was viewed or listened to.

4. After taking the lessons and recording the verification codes contact our office via email at distancelearning@nysta.org with your name and course name in the body of the email and we will forward you the link for your selected course verification and completion quiz.
5. Follow the link provided and agree to all rules and regulations, enter your verification codes, take the multiple choice quiz and complete the contact information section.
6. If you pass the quiz with 70% or greater you will receive an email with your score, and your NYSDEC recertification credit certificate will be mailed to you. If you fail, you will receive an email with your score. You can then go back and retake the quiz to try and get a passing score. You may take the quiz as many times as needed to get a passing score.
7. If needed there is also an option to have a notice sent to your employer via email stating that you have passed the course. No email will be sent until you have passed the quiz with a score of 70% or greater.
8. If you have multiple people from the same organization looking for recertification credits separate DVDs and CDs must be ordered

If at any time you have a question about the Take It With You - NYSTA Education Series you can contact our office at distancelearning@nysta.org or (518) 783-1229.

Consider these conditions before you select a core course.

1. These courses adhere to New York

Our new Take It with You – NYSTA Education Series includes DVDs and CDs for those of you who can't attend conferences or workshops and need to earn credits. This convenient format allows you to learn from your office or home at the times that best fit your schedule.

Look for more information on NYSTA's Winning Fields, Winning Fairways at Nazareth College and Irondequoit Country Club on October 6 on page 13.

- State regulations (6 NYCRR 325.18) and have been approved by the Department of Environmental Conservation. Therefore, when you take a DVD or CD recertification course, you must follow the same rules as you would when you attend live recertification training.
2. This is a regulated activity. You must complete the course according to time stipulations (1 credit equals 1 hour of course work) in order to obtain state recertification credits. You must watch all of the video narration and or listen to all the audio narration and or study the course content.
3. Sponsors of an approved NYSDEC pesticide applicator distance learning course must have procedures in place to verify the identification of the individual enrolled in the course. The applicator earning credits must be the one taking and completing the course. Anyone using a substitute is committing fraud and will forfeit their course fee and will not receive credits.
4. A particular course may not be repeated in a recertification cycle. There are no limits on the number of different courses you can select. The maximum hours of training is 7 per day.
5. Sorry, but there are no refunds.

New York State Turfgrass Association

Calendar of Events

2011

- | | |
|---------------------------|--|
| August 17, 2011 | Sullivan County Challenge
Steve Smith Memorial Tournament
Grossinger Country Club, Liberty, NY |
| August 29, 2011 | Central New York Poa Annual Golf Tournament
Camillus Country Club, Camillus, NY |
| September 6, 2011 | MetGCSA Poa Annual Golf Tournament
Fresh Meadow Country Club, Great Neck, NY |
| September 12, 2011 | Northeastern Poa Golf Tournament
Normanside Country Club, Delmar, NY |
| September 22, 2011 | Adirondack Poa Golf Tournament
Cronin's Golf Resort, Warrensburg, NY |
| October 3, 2011 | Hahn Memorial Scholarship Tournament
Shadow Lake Golf Course, Penfield, NY |
| October 6, 2011 | Winning Fields, Winning Fairways
Irondequoit Country Club and Nazareth College, Rochester, NY |

2012

- | | |
|----------------------------|---|
| January 24-25, 2012 | Southeast Regional Conference
Ramada Conference Center, Fishkill, NY |
| February 13, 2012 | Western Regional Conference
Millennium Hotel Buffalo, Buffalo, NY |
| March 21, 2012 | Adirondack Regional Conference
High Peaks Resort, Lake Placid, NY |
| November 13-15 | Empire State Green Industry Show
Rochester Riverside Convention Center, Rochester, NY |

For more information go to www.nysta.org or contact our office at (518) 783-1229.





New York State Turfgrass Association's Distance Learning - Take it with You



An Introductory 10% Discount Available to All NYSTA Members!*

The New York State Turfgrass Association is pleased to announce the availability of distance learning for acquiring New York State DEC recertification credits, ISA CEUs and GCSAA education points. Our new **Take it with You – NYSTA Education Series** includes video DVDs and audio CDs for those of you who can't attend conferences or workshops and need to earn credits. This convenient format allows you to learn from your office or home at the times that best fit your schedule.

The **Take it with You** education series features outstanding sessions professionally recorded at our annual and regional conferences. NYSDEC has awarded credits for all course material.

To order your selected courses below contact NYSTA via our web site at www.nysta.org, or by phone at (518) 783-1229. Upon payment your course materials will be sent to you. After watching the DVD or listening to the CD, follow the instructions provided for taking the quiz to receive credit. For additional information and details about requirements for distance learning with the **Take it with You – NYSTA Education Series**, visit our web site at www.nysta.org.

Be sure to take advantage of this exceptional opportunity to earn credits at your convenience!

Session Title	Presenter	DEC Credits	Format	Cost	Mem. Cost*
Plant Growth Regulator Use and Weed Control for Sports Turf	Ronald Calhoun, Ph.D., Michigan State University	3a, 3b, 10 = 1.75 each	<input type="checkbox"/> DVD <input type="checkbox"/> CD	\$87.50 + \$7 tax	\$78.75 + \$6.30 tax
Plant Growth Regulator Use for Golf Turf	Ronald Calhoun, Ph.D., Michigan State University	3a, 3b, 10 = 1.50 each	<input type="checkbox"/> DVD <input type="checkbox"/> CD	\$75 + \$6 tax	\$67.50 + \$5.40 tax
Cornell Research Update: Potassium Fertilization Affects Plant Metabolism and Snow Mold Susceptibility of Annual Bluegrass	Dave Moody, Cornell	25 = 0.50 3a, 3b, 10 = 1.50 each	<input type="checkbox"/> DVD <input type="checkbox"/> CD	\$75 + \$6 tax	\$67.50 + \$5.40 tax
Increasing Precision of Plant Growth Regulator Use	William Kreuser, Cornell				
Nontarget Effects of Turfgrass Insecticides	Dan Peck, Ph.D., Cornell				
Turf Insects: Back to Basics	Dan Peck, Ph.D., Cornell	3a, 3b, 9, 10, 25 = 1.00 each	<input type="checkbox"/> DVD <input type="checkbox"/> CD	\$50 + \$4 tax	\$45 + \$3.60 tax
Turf Pest Management	Frank Rossi, Ph.D., Cornell	3a, 3b, 10, 25 = 1.00 each	<input type="checkbox"/> DVD <input type="checkbox"/> CD	\$50 + \$4 tax	\$45 + \$3.60 tax
Sports Turf without Pesticides	Frank Rossi, Ph.D., Cornell	3a, 3b, 10 = 1.50 each	<input type="checkbox"/> DVD <input type="checkbox"/> CD	\$75 + \$6 tax	\$67.50 + \$5.40 tax
Fairway Conversion with Herbicides	David Oatis, N.E. Region, USGA Green Section	3a, 3b, 10 = 0.75 each	<input type="checkbox"/> DVD <input type="checkbox"/> CD	\$37.50 + \$3 tax	\$33.75 + \$2.70 tax
Cornell Research Update: Diagnosis Turf: Insect Identification as a Key to the Resolution of Pest Problems	Dan Peck, Ph.D., Cornell	3a, 3b, 9, 10, 25 = 2.00 each	<input type="checkbox"/> DVD <input type="checkbox"/> CD	\$100 + \$8 tax	\$90 + \$7.20 tax
Prospecting for Resistance to the Annual Bluegrass Weevil in Poa annua					
Tandem Control of Invasive Crane Flies and White Grubs	Jenny Kao-Kniffin, Ph.D., Cornell				
New Developments in IPM-based Weed Management for Turf					
Trees and Turf: Managing the Conflict and Getting Results ISA CEUs = 1.0	Rick Harper, CCE of Westchester County	3a, 10 = 1.00 each	<input type="checkbox"/> DVD <input type="checkbox"/> CD	\$50 + \$4 tax	\$45 + \$3.60 tax

Name: _____
 DEC License Number: _____
 Company: _____
 Address: _____
 Phone: _____ Fax: _____
 Email: _____

DVD/CD Total: _____
 Shipping and Handling: \$3
 Tax (8%) Total: _____
 Total: _____

Payment Information: Credit Card Check _____ Cash PO/Voucher # _____
 Card Number _____ Exp. Date: _____
 Billing Address: _____
 CIN # (3 digits on back): _____ CIN # (4 digits on front - AMEX only): _____

Office Use Only
 Date Received: _____
 Disc Issued: _____
 Test Passed: _____
 Results Submitted: _____

**Please return form with payment to NYS Turfgrass Association, PO Box 612, Latham, NY 12110,
 Phone: 518-783-1229, Fax: 518-783-1258, nysta@nysta.org. * Offer good until December 31, 2011.**



Civitas and Primo Influence Ball Roll Distance and Putting Green Performance

The objective of this study was to evaluate the interactive effect between Civitas and Primo on clipping production, ball roll distance, dark green color index (DGCI), annual bluegrass populations and dollar spot suppression on a golf course putting green.

Methodology

The study was established in a completely randomized design with

formulations of the “one-pack” Civitas applied alone at one rate and in combination with three rates of Primo.

Treatments were applied to experimental plots (4' x 15') established at the Cornell University Turfgrass Research Center in Ithaca, NY on a mixed stand of creeping bentgrass/annual bluegrass (*Agrostis palustris/Poa annua*) grown on a sand-based putting green managed to championship conditions. The plots were treated with light frequent balanced liquid fertilization to supply approximately 2.5 lbs of actual N per 1000 square feet. Plots were irrigated to prevent stress as rainfall was slightly below normal during the growing season. Plots were rolled at least three times per week. Curative fungicide (Daconil Ultrex) was applied only after data collected to prevent significant turf loss.

Initial applications were made on

three replications. The treatments included a control (fertilizer only), the commercially available two-pack formulation of Civitas plus Harmonizer at one rate, and two

Trt#	Product	Rate/1000 (oz/1000)	Interval (days)
1	Untreated, fertilizer only	-	-
2	Civitas+Harmonizer	8/0.5	7
3	Civitas 1P 650-0188	8.5	7
4	Civitas 1P 650-0521	8.5	7
5	Primo	0.125	7
6	Primo	0.25	7
7	Primo	0.4	7
8	Primo	0.125	7
	Civitas+Harmonizer	8/0.5	
9	Primo	0.125	7
	Civitas 1P 650-0188	8.5	
10	Primo	0.125	7
	Civitas 1P 650-0521	8.5	
11	Primo	0.25	7
	Civitas+Harmonizer	8/0.5	
12	Primo	0.25	7
	Civitas 1P 650-0188	8.5	
13	Primo	0.25	7
	Civitas 1P 650-0521	8.5	
14	Primo	0.4	7
	Civitas+Harmonizer	8/0.5	
15	Primo	0.4	7
	Civitas 1P 650-0188		
16	Primo	0.4	7
	Civitas 1P 650-0521		

Trt	Turf Quality				
	2-Jul	9-Jul	27-Jul	15-Aug	10-Sep
1 Control	6.1	6.0	5.9	6.0	5.9
2 C+H	7.0	7.0	7.3	7.4	6.9
3 C0188	6.7	6.8	7.0	7.1	6.8
4 C0521	6.8	6.7	6.8	6.9	6.6
5 P1 (0.125)	6.1	6.1	6.2	6.6	6.3
6 P2 (0.25)	6.0	5.9	6.0	6.3	6.0
7 P3 (0.4)	6.0	5.8	5.8	6.0	5.8
8 P1+C+H	6.8	6.5	6.7	6.9	6.6
9 P1+C0188	6.6	6.5	6.7	6.8	6.5
10 P1+C0521	6.6	6.5	6.7	6.7	6.3
11 P2+C+H	6.7	6.8	6.9	6.9	6.6
12 P2+C0188	6.7	6.5	6.8	6.9	6.5
13 P2+C0521	6.4	6.2	6.5	6.7	6.6
14 P3+C+H	6.7	6.6	6.9	7.0	6.7
15 P3+0188	6.5	6.3	6.5	6.6	6.4
16 P3+0521	6.5	6.2	6.3	6.6	6.3
LSD (p=0.05)	NS	NS	0.3	0.3	0.3

June 7, 2010 and continued for 12 weeks (final treatments were made on 24-Aug) at 7 day intervals following data collection (clippings, DGCI and ball roll). Treatments 4, 10, 13 and 16 contained various batches of what was initially labeled Civitas IP 650-0521.

Golf traffic is simulated daily during the season using a modified traffic device with two 0.5 meter diameter rollers that spin at different speeds to create slipping motion. The rollers are fitted with SoftSpikes. The amount of spikes and passes used are designed to simulate 30,000 rounds of golf.

Applications were made with a handheld CO2 sprayer at 40 psi (276 kPa) fitted with TeeJet XR8010 flat fan nozzles calibrated to deliver 2 gallons (7.6 liters) of water per 1,000 ft² (92.9 m²).

Data analysis was conducted using linear mixed models with compound symmetric covariance structure to assess treatment effects when repeated measurements were made on the same experimental unit over time. Treatment differences at individual measurement events were evaluated using analysis of variance and Fisher's protected least significant difference (LSD). The MIXED and GLM procedures in SAS/STAT software version 9.1 (SAS, Cary, NC) were used to perform the analyses.

Results

Turf Quality

Turf quality was assessed on five occasions using a scale of 1 to 9; where 1 = poor quality, 9 = excellent quality, and 6 = acceptable quality. There were significant treatment differences on each rating date and specific interactive effects on three of the five rating dates, i.e. the turf quality rating were dependent on both Civitas and Primo.

The interactive effect appeared to suggest that Civitas was able to mitigate any reduction in turfgrass quality associated with increasing rates of Primo. The effect was most evident with the two pack formulation and the IP formulation.

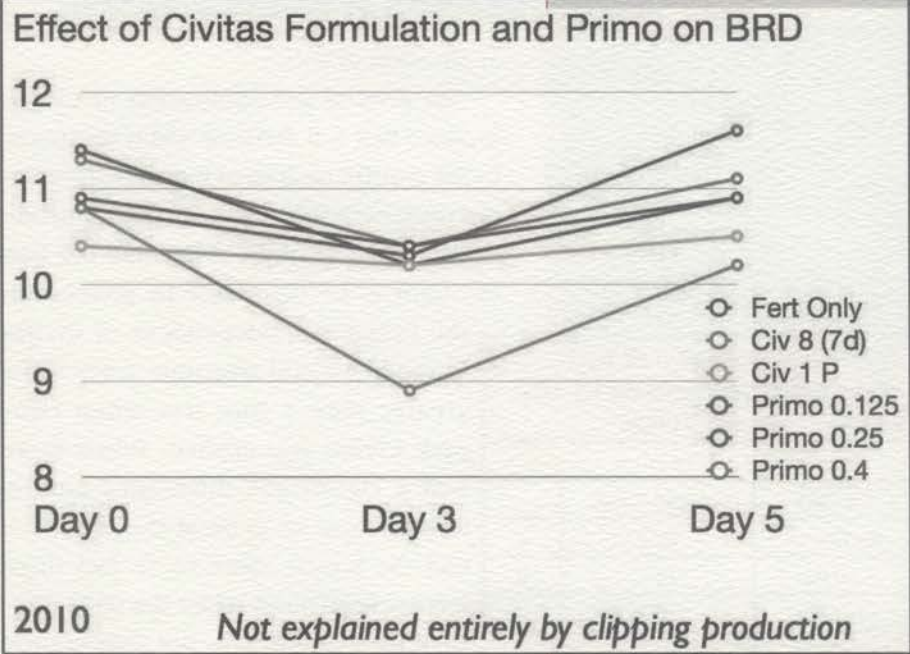
In general the application of Civitas increased turfgrass quality ratings however there was a significant effect of formulation. Specifically, the two pack had higher turf quality ratings than the IP formulation five weeks after treatments were initiated. Additionally, the two pack formulation had higher season long turf quality ratings (Table 3). In contrast to Civitas, the application of Primo either had no effect or slightly reduced turfgrass quality ratings as rate increased five weeks after treatments were initiated.

Table 3. Main effect of Civitas on seasonal turf quality ratings

Turf Quality		
CIVITAS	Overall Mean	
No Civitas	6.0	a
Civ+Har	6.8	b
Civ 0188	6.6	c
Civ 0521	6.5	c

Ball Roll

Ball roll distances were determined



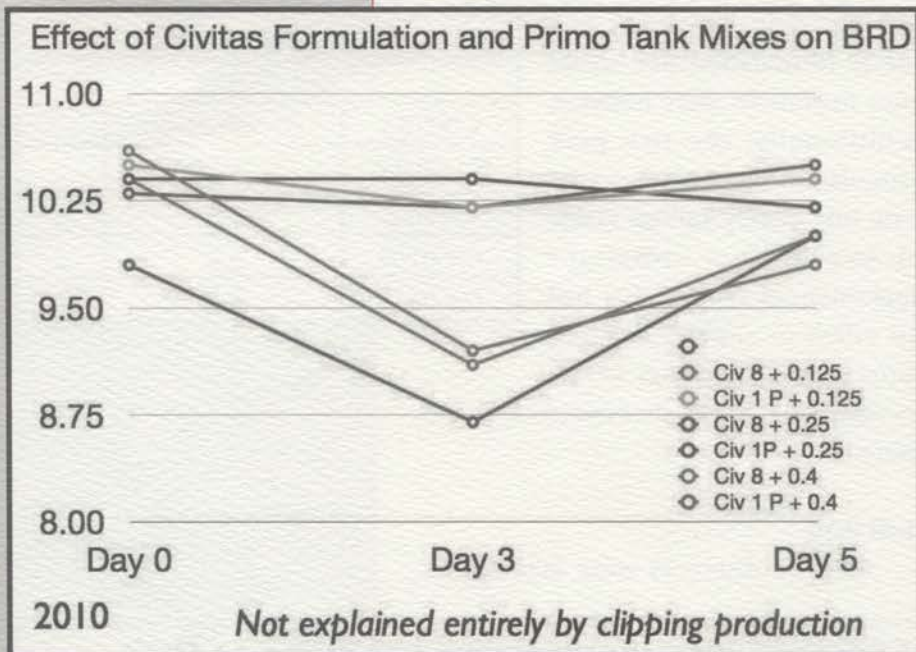
weekly prior to application of treatments using a Pelzometer. For two 7-day periods (28-Jun to 4-Jul and 26-Jul to 1-Aug), ball roll measurements were determined daily. Change in ball roll distance over a six hour day (after mowing and 6 hours later) was determined on the last two days of each 7-day period.

Surprisingly there was no interactive effect between Civitas and Primo for any date during the entire study for ball roll distance. The data is presented for review

only and cannot be used to draw substantial conclusions as it appears that ball roll distance was explained by differences in Civitas and Primo independent of the

Primo significantly increased ball roll distance when compared to the untreated (fertilizer only) plot for the first three weeks of the study. During the daily ball roll measures in week 3 there were four of the seven dates when there was a slight increase in ball roll distance with no rate response, i.e., Primo increased ball roll distance independent of application rate. Interestingly over time we did not observe a significant increase in ball roll distance after week 3 but there was a significant but minor effect (<0.3') on seasonal ball roll distance, again independent of rate.

While no meaningful conclusions can be drawn from the interactive effects of Civitas and Primo it was obvious that Civitas treatments had consistently lower ball roll distance than Primo treatments. Furthermore there was a slight trend that Primo use could mitigate the reduction in ball roll distance associated with Civitas use and this was most pronounced with the two-pack that often had the lowest ball roll distance among the Civitas treatments.



application of both.

In general the application of Civitas reduced ball roll distance when compared to the control treatment but the effect was not consistent until week 3. The reduction in distance was often more than 0.5 foot (thought to be detectable by golfers) on the Pelzometer independent of Civitas formulation and overtime grew to be greater than 1 foot less when two-pack Civitas was applied. When there was a significant difference among formulations in general the two pack had the lowest measure. In fact there were several dates when the 0521 one-pack formulation was not significantly different from the control treatment, suggesting no reduction on ball roll distance.

The daily measure of ball roll revealed an inconsistent response in week three with only three of seven daily measures that week being different. However in week seven the daily measure of ball roll began and remained significantly lower over time with the two-pack ending the week more than 1 foot less than the control treatment and significantly less than the one-pack formulations.

Clippings Dry Wt

Clippings were collected weekly prior to application of treatments. A strip was mowed down the center of each plot, clippings collected, dried and weighed. There was a significant interactive effect of Civitas and Primo interaction on two dates (week 4 and 7) during the trial. Except for those two dates clipping production was explained by either Primo or Civitas applied alone.

The interactive effects indicate that the significant increase in clipping production from the application of Civitas is mitigated by increasing the rate of Primo. Specifically, the 0521 formulation in these early weeks produced the highest clipping totals and were almost reduced by half when applied with increasing rates of Primo.

The main effect of Civitas when viewed independent of Primo indicates that over time in weeks 10-12 there was a significant increase in clipping production independent of Civitas formulation. Furthermore when

Table 4. Seasonal ball roll distance as influenced by the application of Civitas

Ball Roll Distance		
CIVITAS	Overall Mean	
No Civitas	10.7	a
Civ+Har	10.0	b
Civ 0188	10.2	b
Civ 0521	10.2	b

Table 5. Seasonal ball roll distance as influenced by the application of Primo

Ball Roll Distance		
PRIMO	Overall Mean	
No Primo	10.1	a
Primo 0.125	10.4	b
Primo 0.25	10.3	b
Primo 0.4	10.4	b

viewed as a seasonal average there was no significant increase in clipping production associated with Civitas.

In contrast to Civitas, Primo had a significant effect on clipping production, in some cases reducing clipping production more than 50%. There was a strong rate response with the 0.4 ounce rate showing the greatest reduction in clippings especially when viewed as seasonal totals.

Dark Green Color Index (DGCI)

Digital photos were taken weekly prior to application of treatments. DGCI values were generated from the photos using SigmaScan software as described by Karcher and Richardson (2004). There was no significant interaction between Civitas and Primo on any date. Interactive data is presented for examination only.

In general the application of Civitas increased DGCI with the two pack and the 0521 formulations providing higher (darker green) readings than the 0188 formulation independent of Primo applications. There was only one date out of twelve where Primo treatments were significantly different than the untreated control. On that date Primo increased DGCI over untreated.

Dollar Spot

Incidence of dollar spot was assessed on two occasions by counting the number of spots per plot. There was a significant interactive effect of Civitas and Primo on both rating dates.

All treatments reduced dollar spot when compared to untreated control. In general Civitas demonstrated a greater reduction in dollar spot numbers when compared to Primo. There was no difference in dollar spot suppression among Civitas formulations nor Primo rates.

The application of both Civitas and Primo seemed to reduce dollar spot levels more than each product applied individually however it appear the effect is additive and likely not synergistic but more research could be conducted to further elucidate this response. There was no clear rate response

with Primo however the 0188 formulation did appear to be more responsive to reduced dollar spot as Primo rate increased. It appears that when mixed with Primo the two-pack and the 0188 formulation provided greater dollar spot suppression than the 0521.

Annual Bluegrass Population

Annual bluegrass population assessment was made using the point-quadrat method twice during the season to determine if the population of annual bluegrass was altered in response to applications. These data indicate there was no significant effect of Civitas and Primo on population shifts.

The lack of effect on annual bluegrass was somewhat surprising especially at the low rates of Primo that are well known to lead to increased health of annual bluegrass. Also this refutes some suspicion that Civitas leads to increased annual bluegrass population. A close inspection of the data does suggest at the highest rate of Primo and Civitas that annual bluegrass population does increase however the effect is not significant.

Summary

This study has confirmed some observations from the field use of Civitas, questioned some preconceived notions regarding Civitas and Primo and suggests this is a more complicated interaction than originally thought.

There were few consistent interactions

Table 6. Seasonal clipping production as influenced by the application of Civitas

Clipping Dry Wt (g)		
CIVITAS	Overall Mean	
No Civitas	2.8	a
Civ+Har	3.2	a
Civ 0188	3.2	a
Civ 0521	3.3	a

Table 7. Seasonal clipping production as influenced by the application of Primo

Clipping Dry Wt (g)		
PRIMO	Overall Mean	
No Primo	4.2	a
Primo 0.125	3.1	b
Primo 0.25	2.9	b
Primo 0.4	2.4	bc

Table 8. Seasonal DGCI as influenced by the application of Civitas

Dark Green Color Index		
CIVITAS	Overall Mean	
No Civitas	0.552	a
Civ+Har	0.613	b
Civ 0188	0.614	b
Civ 0521	0.611	b

Table 9. Seasonal DGCI as influenced by the application of Primo

Dark Green Color Index		
PRIMO	Overall Mean	
No Primo	0.584	a
Primo 0.125	0.597	a
Primo 0.25	0.604	a
Primo 0.4	0.604	a

Table 10. Incidence of dollar spot as influenced by the application of Civitas and Primo

Trt	Dollar Spot (#/plot)	
	22-Jul	4-Aug
1 Control	53.7	43.7
2 C+H	12.3	15.0
3 C0188	11.0	11.0
4 C0521	18.0	17.3
5 P1 (0.125)	21.7	19.0
6 P2 (0.25)	21.3	25.0
7 P3 (0.4)	26.3	25.7
8 P1+C+H	9.7	9.7
9 P1+C0188	10.0	9.3
10 P1+C0521	12.3	12.0
11 P2+C+H	16.0	13.7
12 P2+C0188	9.7	10.0
13 P2+C0521	10.7	11.7
14 P3+C+H	18.7	15.0
15 P3+0188	9.3	7.3
16 P3+0521	16.3	19.3
LSD (p=0.05)	9.0	9.5

between Civitas and Primo last a few weeks of clipping production, turf quality and dollar spot.

There is no question Civitas reduces ball roll distance, especially with the commonly used two-pack formulation and it appears this effect increases over the season with ball reductions as much as 1.3 feet compared to untreated and Primo treated plots. While no significant interaction was observed there was clearly a trend that Primo was able to mitigate the effect of Civitas on ball roll distance but not to the level that Primo provided when applied alone. Interestingly, Primo applied alone rarely had a significant effect on ball roll distance.

The lack of interaction between the products especially for ball roll and clipping production seems to correlate, i.e., the lack of difference associated with ball roll is consistent with the general lack of difference in clipping production. While clearly Civitas increases clipping production on some dates, this increase is slight and often mitigated by the use of Primo.

Furthermore, there was little meaningful differences among Civitas formulations for clipping production that was not consistent with ball roll distances that were always lower with the two-pack. Clearly something beyond increased growth must be involved with the reduced ball roll distance.

Turfgrass quality was significantly increased with Civitas but often reduced with increasing rates of Primo compared to untreated plots. The rate response reduction in turfgrass quality associated with Primo appears to be mitigated with the use of Civitas. This suggests that if increasing growth reduction and ball roll distances derived from Primo use is desired there would be no reduction in turfgrass quality ratings if applied with Civitas.

Finally there was significant dollar spot suppression associated with the combination of Civitas and Primo. In general both products reduced dollar spot

levels however there was a significant formulation effect of Civitas with the 0188 providing the greatest level of suppression independent of Primo rate. This level of dollar spot reduction is worth noting in the context of the other data collected indicating that there is no compromise in disease control when striving for superior performance and visual quality. This also suggests that with only slightly more assistance from traditional fungicides the Primo plus Civitas program can be considered the cornerstone of a putting green dollar spot management program.

The surprising lack of effect on annual bluegrass populations was another important but unexpected response. It could have been speculated that the improved plant health thought to arise from both Civitas and Primo would lead to increases in annual bluegrass populations, yet this was not observed.

In conclusion, the regular use of Primo on putting greens for ball roll distance management does not appear to be as consistent as originally thought. New methodology is coming to light regarding application frequencies that may alter this view. However it is clear that the use of the commercially available two-pack Civitas does reduce ball roll distance independent of Primo use. This interaction appears complex as we did not successfully elucidate a clear response for ball roll related to the use of both products and simple increases in growth does not explain the observations.

*Frank Rossi, Ph.D. and Mary Thurn
Cornell University*



Nazareth College and
Irondequoit Country Club
Rochester, New York

For more information visit
www.nysta.org or phone (518) 783-1229

Thursday, October 6, 2011

Program Courses at Nazareth College Courses at Irondequoit Country Club
(locations are within walking distance of each other) [GCSAA Education Points = .55]

7:00 am	Registration, Continental Breakfast and Trade Show	
7:45	Welcome - Greg Chorvas, NYSTA President	
8:00-9:30	General Session [DEC Credits: 3a, 3b, 10, 25 = 1.25 each; .15 STMA CEUs] Grant Research Updates Reduced Chemical Pest Management Frank Rossi, Ph.D., Cornell University How Nitrogen Application Rates Influence the Extent of Nitrogen Leaching Marty Petrovic, Ph.D., Cornell University The Role of Environmental Genomics in Non-conventional Weed Management Jenny Kao-Kniffin, Ph.D., Cornell University Preventive, Curative and Tandem Control of Grass-Feeding Grubs and Leatherjackets Daniel Peck, Ph.D., EntomoTech Fundamentals	
9:30 - 10:30	Golf Turf Irrigation Uniformity Rain Bird Corporation	Sports Turf [.1 STMA CEUs] Preparing Your Infield Now for Spring Play Joseph Harris, Doubleday Field, Village of Cooperstown Dan Fick and Charlie Vestal, Profile Products LLC
10:30 - 11:00	Trade Show and Break	
11:00 - 12:00	Golf Turf [DEC Credits: 3a, 3b, 10 = 0.50 each] Advanced Organic Matter Management for Putting Greens Frank Rossi, Ph.D., Cornell University	Sports Turf [DEC Credits: 3a, 3b, 10 = 0.50 each; .1 STMA CEUs] Using Soil Testing: Why, How and What to do with the Results Marty Petrovic, Ph.D., Cornell University
12:00 - 1:00	Lunch and Trade Show	
1:00 - 2:00	General Session [DEC Credits: 3a, 3b, 10 = 0.50 each; .1 STMA CEUs] Aerification/Renovation A-Z: Benefits, Techniques, Types of Equipment, Topdressing, Overseeding Dominic Morales, SUNY Delhi; Daniel Schied, University of Rochester; Chris des Garennes, DryJect, Inc.	
2:00 - 2:30	Trade Show and Break	
2:30 - 3:30	Golf Turf [DEC Credits: 3a, 3b, 9, 10, 25 = 1.00 each] White Grubs and European Crane Flies: Scouting, Identification and Diagnosis Daniel Peck, Ph.D., EntomoTech Fundamentals Rod Ferrentino, Ferrentino & Co., Inc.	Sports Turf [DEC Credits: 3a, 3b, 10 = 1.00 each; .1 STMA CEUs] Sports Turf Management without Pesticides for Schools Frank Rossi, Ph.D., Cornell University

Each attendee will receive a complimentary copy of "Sports Turf Manual: Sports Field Management" written by Joann Gruttadauro. This is a comprehensive management guide for scholastic and community high-use sports fields providing valuable information on how to maintain sport fields to maximize safety and performance. This manual is a \$15 value.

Sponsored by:



NYS DEC Credits • STMA CEUs • GCSAA Education Points

NYSTA'S Winning Fields Seminar

The New York State Turfgrass Association's Winning Fields Seminar, held at the Joseph L. Bruno Stadium, home of the Tri-City ValleyCats, on Tuesday, June 14, 2011 was a great opportunity for 90 athletic field managers to learn from the best. The goal of this seminar, endorsed by the Sports Turf Managers of New York and sponsored by Turface Athletics, DryJect Services, LLC, Beam Clay/Partac Peat Corporation and Cornell University, was to increase the awareness of athletic field managers and superintendents of school buildings and grounds on the skills necessary to maintain safe, high quality scholastic and municipal sports turf.

NYSTA would like to thank The Brickman Group's sports turf supervisor, John Hudson, Jr., Tri-City ValleyCats President and General Manager, Rick Murphy and President of Brickman Sports Turf, Murray Cook, for hosting and presenting at this event. In addition, we would like to recognize program speakers: Dr. Frank Rossi with Cornell University, Dr. Alex Ellram from SUNY Delhi, Dr. Ben McGraw with SUNY Cobleskill for their informative sessions on sports turf management without pesticides and disease and insect control.

If you missed the opportunity to get to the 2011 Winning Fields, you have a second chance to attend this unique type of learning experience at the 2011 NYSTA Winning Fields, Winning Fairways at Nazareth College and Irondequoit Country Club in Rochester, NY. This event will include instruction on both Sports Turf and Golf Turf maintenance with on-field demonstrations, classes and trade show.



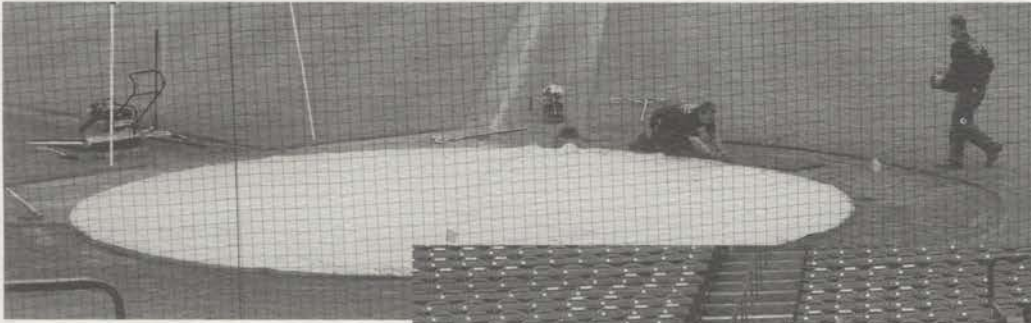
(left to right) Greg Chorvas, President, NYSTA; John Hudson, Supervisor for Brickman Sports Turf; Rick Murphy, Vice-president and General Manager, Tri-City ValleyCats and Murray Cook, President of Brickman Sports Turf.

Frank Rossi, Ph.D., Cornell University discusses Low Stress Ball Diamond Turf with the crowd at the Joseph L. Bruno Stadium during the 2011 NYSTA Winning Fields Seminar.



Murray Cook (left), President of Brickman Sports Turf and John Hudson (right, kneeling), Supervisor for Brickman Sports Turf show with an on-field demonstration, steps to take for Infield Mound and Home Plate Maintenance to attendees of the 2011 NYSTA Winning Fields Seminar.

Throughout the day onlookers could view the installation of fresh sod from Saratoga Sod Farm, Inc. around the home base at the Joseph L. Bruno Stadium, home of the Tri-City Valley Cats. Installation was done by Shane Drumm (left in first photo) and Joe Barton (standing first photo) of Drumm's Turf Service. Final measurement confirmation was completed by Drew Doty (bottom photo) a staff member of Joseph L. Bruno Stadium.



Healthy Ecosystem

continued from page 16

lbs/1000 sq.ft. of soluble N during summer months and a very small amount of leaching at 0.4 lbs/1000 sq.ft. At higher applications there were significant amounts of leaching. For the sandy loam soil apply no more than 0.7 lbs/1000 sq.ft. of soluble N during summer months resulted in a little leaching and up to 0.5 lbs/1000 sq.ft. there was no leaching. At higher applications there were significant amounts of leaching.

It was apparent that when more N was applied there was less efficient use of N, thus was suspect to leaching. It should be noted that was just one measurement period related summer conditions and the results for other application dates need to be compiled to determine what the maximum rate of soluble N is for a given soil in a given season.

Marty Petrovic, Ph.D.,
Cornell University

Healthy Ecosystem

This will be the first research study that directly looks at determining the maximum N application that does not result in a high N leaching amount. The objective of this project is to determine the maximum single N application rate that does not result in a high N leaching amount for a given season.

NYSTA Grants Program Research Summary for 2010 Influence Nitrogen Application Rate on the Extent of Nitrogen Leaching

Even though we know a lot about nitrogen (N) leaching from turfgrass ecosystems, little has been done to determine what the maximum N application rate should be from an N leaching prospective. Studies of this nature have had only a few treatments, not done to determine a maximum application rate. This will be the first research study that directly looks at determining the maximum N application that does not result in a high N leaching amount. The objective of this project is to determine the maximum single N application rate that does not result in a high N leaching amount for a given season.

Research Methodology

The study was conducted at the Cornell University Turfgrass and Landscape Field Research Laboratory, Ithaca, NY. The study was conducted in an open sided poly house to avoid any rainfall occurring before the prescribed leaching event. In the May 2010, soil containers (24" X16" by 12" deep) were filled with one of two soils, quartzite sand (USGA std) and Arkport sandy loam then sodded with Bedazzled Kentucky bluegrass. After a 2 month establishment period, fifteen fertilizer treatments were applied on July 12-14, 2010 from 0.1 to 1.5 lbs N/1000 sq.ft (at 0.1 lb N/1000 sq.ft. intervals) and an unfertilized control, using

ammonium sulfate is the N source. The treatments were replicated three times. All containers then received the same amount of N for a total of 1.5lbs/1000 sq.ft before the next application. The second fertilizer applications were made on October 12-14, 2010.

Just prior to and one week after each application the containers were leached with water equivalent to 2 pore volumes to leach all soluble N from the containers. The drainage water from the July 2010 N treatments was analyzed for NH₄, NO₃ and total N. Drainage water from the October 2010 fertilizer application are being analyzed. Other data collected were plant density, color and quality each week using digital techniques and are being analyzed using SigmaScan. The study will be repeated in 2011 with fertilizer application being applied in early May, late July and mid October 2011.

Results To Date

We hypothesized that it is very likely that we will find a point where additional levels of N applied will result in a high level on N leaching and that this point will be likely a little lower in the sand than the sandy loam soil.

For the sand there was no nitrogen leached when N was applied up to 0.3

continued on page 15