

erate new revenues. While the board will approve the association budget in December, the sentiment is not to raise member dues for 2010.

- The health of the GCSAA Education Conference and the Golf Industry Show, as well as the future rotation of the event.
- GCSAA advocacy efforts with lawmakers, media and other audiences.
- Best practices by chapters to increase effectiveness and engagement.
- GCSAA membership recruitment and retention activities.

After nearly 10 years, GCSAA's first digital publication, *Newsweekly*, will cease production next month. In an effort to reduce the amount of e-mail sent to GCSAA members, consolidate communication efforts and eliminate duplication of information, the last issue will be published on Dec. 17.


You will be able to find the information usually contained in *Newsweekly* on the GCSAA homepage, [www.gcsaa.org](http://www.gcsaa.org), in the digital version of *Golf Course Management* magazine, and in the GCSAA members-only publication *GCSAA This Week*.

GCSAA has instituted a staff furlough for Nov. 23-25 and will observe the Thanksgiving holiday Nov. 26-27. In addi-

tion, GCSAA will be closed Dec. 24-Jan. 1 for the Christmas holiday, for an additional staff furlough Dec. 28-31, and for the New Year's Day holiday Jan. 1. The association headquarters will provide minimal services through its call center on the days of the furlough.

The partnering associations of the Golf Industry Show (GIS) will team up with the San Diego Food Bank for the second annual GIS service project, presented in partnership with The Toro Co.

The San Diego Food Bank, which relies entirely on volunteers to sort, pack and distribute food, provides nearly 24,000 meals a day and feeds over 360,000 people per month. On Monday, Feb. 8, GIS will send both a morning and an afternoon shift, of 100 volunteers each, to work on site at the food bank. Attendees can visit [www.golfindustryshow.com](http://www.golfindustryshow.com) for more information and to register to participate in this worthwhile cause and give back to the San Diego community. Also during the week, attendees may donate food and money at the convention center.

At the 2009 GIS in New Orleans, \$10,000 was raised for the New Orleans Area Habitat for Humanity, and almost 200 volunteers worked on the construction of eight new homes. 

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# White Grub Control: Preventative Versus Curative Treatments?

By Dr. R. Chris Williamson, Department of Entomology, University of Wisconsin - Madison

White grubs are the most widespread and considered by many to be the most destructive insect pests of turfgrasses in the continental U.S. Most species of white grubs damage turfgrass by chewing off the roots near the soil surface. Unfortunately, white grub damage typically occurs during periods of hot and dry weather periods (late summer through early fall), subsequently turf loss can be relatively abrupt and severe. To compound this problem, vertebrate predators such as badgers, birds, moles, raccoons, skunks, and various other animals frequently forage and dig-up grub infested areas. In many cases these animals can cause more damage than the grubs themselves.

Because white grubs feed and destroy turfgrass roots below ground, they often go undetected until measurable loss to the root system has occurred. In addition, white grubs can be difficult to control because soil insecticides must penetrate the turf canopy and thatch layer (when present) in

order to effectively make contact with the grubs located in the upper soil. As a result, turfgrass managers, through the use of appropriate application equipment, adjuvants or surfactants, gravity, and irrigation or natural rainfall, must effectively place respective insecticides into the target zone where the grubs are located to achieve maximum control.

## White Grub Control Strategies

Golf course superintendents and turfgrass managers have two fundamental options for control of white grubs, they include: 1) preventative and 2) curative control. Well maintained turf is especially susceptible to white grub infestations for several reasons. Intensively managed turf is typically mowed at relatively low cutting heights and is fertilized and irrigated regularly. These cultural practices present a conducive environment for white grub development and survival. During periods when rainfall is often limited (i.e., late-July through September), quality turf is typically irrigated

which helps ensure survival of grubs. Unfortunately, necessary management practices implemented to maintain quality turf are ideal for white grubs as well. Thus, respective white grub control measures must be undertaken in order to minimize potential damage as a result of grubs feeding on the roots of turf.

## Preventative Control

Preventative control of grubs is simply the application of a control product (i.e., an insecticide) before eggs have been laid or hatch. Some preventative products must be applied at or before egg hatch to attain maximum control. Currently there are seven preventative white grub control products that are commercially available (i.e., labeled). They include: 1) Acelepryn (chlorantraniliprole); 2) Allectus (imidacloprid + bifenthrin); 3) Aloft (clothianidin + bifenthrin); 4) Arena (clothianidin); 5) Mach 2 (halofenozide); 6) Meridian (thiamethoxam); and 7) Merit (imidacloprid). Most of these products are available in liquid,

Trade Name	Common Name	Manufacturer	Rate (lbs active ingredient/A)
Acelepryn	Chlorantraniliprole	DuPont	0.104 – 0.208
Allectus	Imidacloprid + bifenthrin	Bayer Environmental Science	0.2 + 0.08 – 0.25 + 0.10
Aloft	Clothianidin + bifenthrin	Arysta Life Sciences	0.2 + 0.10 – 0.33 + 0.16
Arena	Clothianidin	Valent USA	0.2 – 0.4
Mach 2	Halofenozide	Dow AgroScience	2.0
Meridian	Thiamethoxam	Syngenta	0.198 – 0.265
Merit	Imidacloprid	Bayer Environmental Science	0.4 – 0.53

Trade Name	Common Name	Manufacturer	Rate (lbs active ingredient/A)
Arena	Clothianidin	Valent USA	0.2 – 0.4
Dylox	Trichlorfon	Bayer Environmental Science	8.15
Sevin	Carbaryl	Bayer Environmental Science	8.0

granular, and fertilizer combination formulations. Regardless of the product or formulation, **ALL grub control products MUST be watered-in** with a minimum of 0.20 inch of water to maximize efficacy by distributing the compound where the target pest is located. On page 42 is a table containing trade names, common names, manufacturer, and rates for preventative grub control products.

**Curative Control**

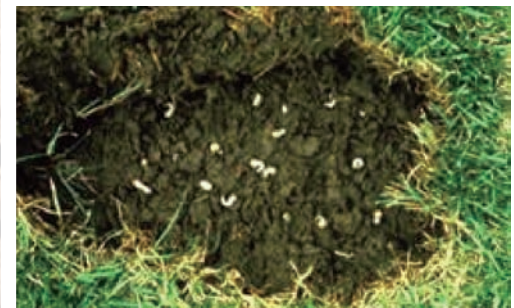
Curative, corrective or rescue control of white grubs is merely treating grubs once they are present and/or causing turf damage. This approach to white grub control may initially appear to be more economical since only problematic areas (i.e., fewer square feet) of turf are treated, thus less product is used. However, there are fewer commercially available products for curative

control and their performance (i.e., efficacy) is often lower compared to preventative treatments. Results from numerous research studies suggest that corrective or rescue treatments have a much larger degree of variability and even under the best conditions only provide about 75% control while preventative white grub treatments consistently provide above 90% control. Above is a table containing trade names, common names, manufacturer and rates of suggested curative grub control products.

Like the preventative control products, regardless of the product or formulation, **ALL curative grub control products MUST be watered-in** with a minimum of 0.20 inch of water to maximize efficacy by distributing the compound where the target pest is located.🌱



**Inset photo: Often turfgrass can be easily peeled when grubs are present.**



**White Grub Larvae**

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# The Year of Change Ends

By David Brandenburg, Golf Course Manager, Rolling Meadows Golf Course

Those who follow my column know that I determined 2009 the "Year of Change" based on changes at home with kids getting older and moving on to school along with management changes at work. As the calendar turns to December the year is quickly coming to an end. Looking back it seems the year of change could be called a success as Kayla our oldest is doing well at college while at work years of planning is coming to fruition.

Of course change cannot be mandated to a time period nor is it controlled by any one of us. It comes and goes on its own, and all we can do is accept it and do the best we can with what we have been given by the many factors that affect our personal and professional lives.

In some ways I am glad to see an end to the 2009 golf season based on the challenges Mother Nature and the economy provided many golf courses including Rolling Meadows. With the challenges comes growth and lessons learned to allow future success.

Late fall is a great time to examine the failures and successes the season offered while giving thanks for the positives in our homes and jobs.

The weather is.... It is said in Wisconsin if you don't like the weather just wait and it will change. That may be true this fall although our weather highs and lows were long lasting. July and August were fairly mild with most of us seeing decent amounts of moisture. That was followed by the nicest September imaginable with warm dry temperatures until one

day it cooled off and started raining, and raining, and raining. September was in the record books for warmth and sunshine while October was in the record books for cold and rain. Then one day the sun came out and at least through November 21 the month has been excellent. This has helped the golf industry bring in customers and the farmers bring in crops.

The short days of November coupled with other activities do not provide huge amount of revenue for golf courses no matter how warm it is. However it is nice to get fall work done and have happy golfers out on the links late in the year.

From the moisture reports found in the Wisconsin Crop Progress report compiled by the Wisconsin Field Office of the USDA's National Agricultural Statistics Service you can see how the levels changed over the two month period. October 18 showed most of the state with 78% reporting adequate moisture and only the north west showing short or very short. The rains showed up for the November 1 report as 46% of the state showed adequate moisture and 54% had surplus water.

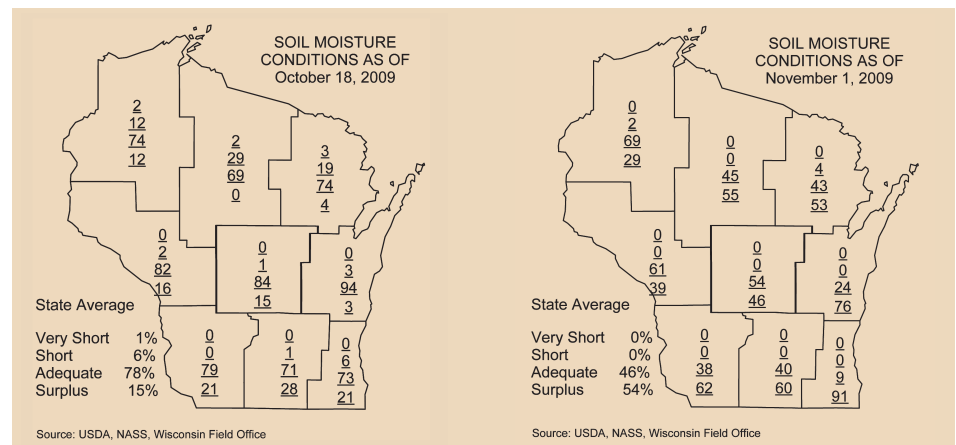
Three \$500 WGCSA Legacy Scholarships are provided to children and grandchildren of WGCSA members who are in college and are announced each fall at the Symposium.

Kurt Van Auken Attending UW Lacrosse, majoring in Exercise and Sports Science. He is the son of David Van Auken of Antigo Bass Lake Golf Course

Mikka Schaller Attending UW Madison, majoring in Political Science. She is the daughter of Scott Schaller of North Shore Country Club

Maggie Janzen 2 time winner attending UW Stout majoring in Food Systems and Technology. She is the daughter of Roy Janzen of Forest Hills Golf Course.

GCSAA has awarded scholarships to 12 college students as part of the GCSAA Scholars Program administered by GCSAA's philanthropic organization, The Environmental Institute for Golf. Glen Obear from the University of Wisconsin - Madison was awarded \$2,000 in the program. Glen, origi-



nally from Sheboygan is a senior in Soil Science and did a internship at Kukio Beach and Golf Club a private club and residential facility on Hawaii's big island.

The GCSAA Scholars Program, funded by the Robert Trent Jones Endowment, was developed to recognize outstanding students planning careers in golf course management. Winners were selected to receive scholarship awards based on the final ranking in a competition judged by GCSAA's Scholarship Committee. Factors considered were academic achievement, potential to become a leading professional, employment history, extracurricular activities, and recommendations from a superintendent with whom the student has worked and a current academic advisor.

Applicants must be enrolled in a recognized undergraduate program in a major field related to golf/turf management and be a GCSAA member. Undergraduate applicants must have successfully completed at least 24 credit hours or the equivalent of one year of full-time study in an appropriate major.

I was fortunate to be invited to the 1st Annual Green Leaders in Golf Invitational held at The Meadows of Six Mile Creek in Waunakee, WI on October 2. The event was organized by the Bruce Company, Madison Golf and Development and 2nd Season Recycling.

The event brought together vendors who are involved with environmental technology and its growing effect on golf course management. Although the day was cold and misty it made us appreciate the couple times the sun popped out.

I am looking forward to the visiting 2nd Season Recycling where building materials are being turned into compost being used for fertil-



Materials Ready for Composting



Compost Used for Fertilizing and tees

ization of fairways at the Meadows of Six Mile Creek. Look for a future article on this process and its benefits in *The Grass Roots*.

For those of you responsible for maintaining the legally required employee posters at your facility, the Equal Opportunity Employment Commission (EEOC) recently published a revised version of its "Equal Employment Opportunity is the Law" poster. The poster informs employees of the federal laws that protect them from job discrimination based on race, color, sex, national origin, religion, age, equal pay, disability and genetic information. This revised version reflects current federal employment discrimination law and includes new information pertaining to the Americans with Disabilities Act Amendments Act of 2008 (which took effect Jan. 1) and the Genetic Information Nondiscrimination Act of 2008

(which takes effect on Nov. 21).

Employers are required to display the revised poster in a conspicuous location where notices to employees are commonly displayed. Be sure that the poster they display has a revision date of 11/09 in the lower right-hand corner. An English version of the two-page poster may be downloaded from the EEOC's Web site, free of charge.

On a side note be cautious of unscrupulous vendors who are using this opportunity to sell you high priced laminated sheets with all your required posters on it. These professional posters provide a clean way to meet the posting requirements but if you shop around you can find them much less than the telemarketers will have you believe. To save even more most of the individual posters can be found on the internet for free and can be hung with or without lamination.

Having the benefit of being a Past President of the WGCSA I have a unique prospective on the job and the years of committee service that lead up to it as you climb the ladder from Director.

All WGCSA Presidents have worked hard to run the association and get things accomplished while living a life and running a golf course. Each term has brought changes in efficiency and technique to provide a better association for the membership. However, it takes a leader with great vision to make changes for the future while continuing to do today's work.

Outgoing President Dustin Riley had that vision and implemented an idea boards have discussed for years but never acted on. Hiring a chapter manager to guide the day to day

activities of the WGCSA is change from the past practice of getting by with volunteers and a good relationship with the WSGA office.

In 1980 President Jim Belfield had that vision as he guided the association to our arrangement with the Wisconsin State Golf Association to handle association phone calls, mailing and banking. This relationship was essential in meeting the needs of our members for 30 years. Thanks to Gene Haas (Retired WSGA Executive Director), Diane Haas, Marilyn Leischer, Tom Schmitz (current WSGA Executive Director) and Linda Scheffler who have done a great job working with our association.

Although the relationship with the WSGA worked well in the past the Chapter Manager relationship will work better for the future. The

change will enhance the value our membership in the Wisconsin Golf Course Superintendents Association and take us to new levels of communication and efficiency.

As Dustin Riley steps down this month and turns the gavel over to Brian Zimmerman I congratulate Dustin and the board for leading the association with vision for the future.

Wow, it is hard to imagine this is my 12th issue of *The Grass Roots*. Thanks to Beverly Bergemann for providing the layout and cover art and the professors, students and other writers who contribute each issue. Without you there would be no *The Grass Roots*.

Merry Christmas! Enjoy the season, and time with family and friends. Good luck to you and yours into the New Year. 🌱

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## Velvet Bentgrass - The Midwest - East Coast Connection

By **Ben Pease**, Graduate Student and Research Technician, Department of Horticulture, University of Wisconsin-Madison

In late September of this year, I had the good fortune of visiting the east coast for a fact-finding mission concerning velvet bentgrass (VBG) use on golf courses. Velvet bentgrass (*Agrostis canina*) is a misunderstood and underused golf green turfgrass. Since the 1930s, one of the few positive mentions of velvet was on the 1977 Jethro Tull album *Songs from the Wood!* Over the past decade interest in VBG has resurfaced due to inquisitive researchers and increased restrictions on maintenance inputs. Let's first explore VBG's history and current research, and then move onto how VBG is used in other areas of the country and its possible applications here in the Midwest.

Velvet bentgrass is a stoloniferous, fine-textured, dense turfgrass used mostly in the northeast and northwest areas of the United States. Introduced to the United States in the early 1900s as South German bent (75% colonial bentgrass, 15% velvet bentgrass, 1% creeping bentgrass, plus many impurities), it began segregating itself out over the next few decades. Golf course superintendents and researchers then began vegetatively propagating VBG in the 1930s for use on sod farms and additional golf courses. Seeded varieties soon became available but seed supplies were low, possibly due to early researchers using inbred material, thereby limiting the further adoption of VBG as a golf green turfgrass. Over-fertilization of early varieties of VBG was another reason it was not widely accepted. Of the few available early cultivars, many were of a much lighter green. When a turf manager is managing a turfgrass that is not

of a desired greenness, we all know that the fertilizer spreader will make an appearance! This over-fertilization (and most likely over-irrigation as well) led to thatchy, unattractive playing surfaces, especially when cut at yesteryear's mowing heights of .20-.25". This mismanagement was occurring when new and improved creeping bentgrasses were introduced in the mid 20th century, causing many courses to remove their failing VBG greens and switch to creeping.

Interest of and research on VBG never quite vanished. It was kept alive by the work of Dr. C.R. Skogley at the University of Rhode Island and by various researchers at Rutgers University in New Jersey. Today, both of those universities are still highly involved in VBG

research, along with the University of Wisconsin-Madison. Part of my time spent on the east coast was at Rutgers University's turfgrass research station. Dr. Jim Murphy gave me a tour of the facility and his VBG research trials. Dr. Murphy's main VBG research focus is on cultural management of the newer velvet cultivars. Some of the factors he is investigating are fertility, thatch control, *Poa annua* control, ball mark repair and traffic stress. Rutgers also has VBG in their NTEP trials, both at green and fairway heights. Dr. Murphy's 'Greenwich' VBG putting greens are 6 years old and show no signs of non-sustainability, a sign that there is a very bright light at the end of the proverbial tunnel for velvet when managed correctly.



Velvet bentgrass among creeping bentgrasses at greens height at Rutgers University





**Weekapaug GC VBG green aerification recovery at two weeks after aeration event.**

Dr. John Stier has been conducting research on VBG at UW-Madison for the past 5 years. His projects have included both greens height turf and fairway height turf. A 2005/06 trial conducted by then graduate student Eric Koeritz compared VBG to CBG cultivars at various mowing heights and fertility rates found that the velvets maintained equal levels of quality with the creepings and the velvets were less susceptible to dollar spot especially at the low mowing heights. Koeritz also began a fertilizer type and rate trial on VBG grown on both sand and soil greens that is currently nearing completion. This trial looks at four types of fertilizer, each at three annual rates, and it is giving us a huge insight into what type of fertilizer will yield the highest and most consistent quality for VBG greens grown in the Midwest. The results of this trial will be published in early 2010 by me and Mr. Koeritz. Current VBG research projects are numbering a record high. Shaded greens were built in 2008 and treatments began



**Dr. Jim Murphy, Manny Jr. and Manny III on one of Green Harbor's beautiful velvet greens.**

this spring on a VBG versus CBG shade tolerance trial, using three fertilizer levels and absence/presence of a growth regulator. A low input fairway trial was seeded in 2009 that will compare fungicide and fertility needs across five different turfgrasses including VBG and CBG. A VBG versus CBG fertility at fairway establishment was conducted this fall in conjunction with the U of M. Preliminary results on establishment from the above few trials suggest that VBG has similar fertility needs to CBG at establishment. A VBG/CBG green establishment project this fall echoed that pattern. Research at UW-Madison has always been cutting-edge and now is no exception with the current and future VBG research.

Enough about research plots; let's discuss the "real" thing: golf courses! Dr. Murphy was kind enough to take me up the shore to Rhode Island and Massachusetts to speak with four superintendents that manage VBG greens. We visited courses at differing levels of maintenance standards, allowing for a complete view of the spectrum. In order of visitation, let's begin with Weekapaug Golf Club in Westerley, RI.

Weekapaug GC is managed by Superintendent Don Urso. It is a 9-hole private course built in 1967

and is located right on the Atlantic Ocean. Don manages native soil push-up greens originally seeded to Kingston VBG. He now overseeds with SR7200 at each verticutting/topdressing event, which is the backbone of his velvet maintenance program. There were two things that Don stressed with VBG: 1. Verticutting and topdressing at 14 day intervals is a must and 2. The members absolutely love the velvet putting surfaces! The greens are cut with a triplex at .120" and receive aeration in spring and fall using 5/8" tines on 2x2" spacing. Fertility is approximately 3.5 # N/M/yr using ammonium sulfate, granular in spring/fall and foliar applications in the summer. Fungicides are not needed except when anthracnose breaks out on the *Poa annua* and of course the pre-winter snow mold prevention. Three oz/A of paclobutrazol is applied every 10-14 days throughout the season. Irrigation is supplied at 60% ET replacement throughout the summer. These maintenance practices give Don's members consistent Stimpmeter ratings of 11-12'. The question to ask here is if any of these maintenance practices greatly differ from ours here in the Midwest.

Our next stop was Shelter Harbor Golf Club in Charlestown, RI. This was a picturesque private

course built in 2004 and is managed by Ed Walsh, CGCS. Shelter Harbor is a Hurzdan/Fry design and utilizes California style 100% sand greens. This style of construction has proven to be difficult to manage as a few greens still have fill-in/stabilization issues. The few problem areas are along the edge of the greens, at the sand/native soil interface. The absence of a perched water table coupled with the wicking nature of the soil cause these areas to be continually water-stressed, and this leads to thinning. . With that said, Ed's greens are overall in great shape and the members couldn't be happier with the velvet turf. But like a typical superintendent, by Ed's description, I could have sworn the greens were dead prior to actually seeing the problem areas! The day of our visit was the first day of a state amateur event and Ed's maintenance practices had the greens in tip-top shape. They are 'Greenwich' VBG fertilized with 4 lbs N/M (ammonium sulfate) per year. The greens are religiously verticut and top-dressed every two weeks to ensure a smooth and firm putting surface. Aeration occurs in spring and fall using 1/2" tines on 2x2" spacing from which the velvet quickly recovers. Again, does anything strike you as out of the ordinary? We'll get to that answer in a bit.

The next day found Jim and me in Massachusetts starting at Belmont Country Club, a beautiful Donald Ross course, the original 9 holes built in 1918. Belmont is a private club (now 18 holes) that hosts only 15-20K rounds per year and is managed by Superintendent Michael Rose. His green complexes used to be native soil 'Vesper' VBG greens but were rebuilt to USGA specs (90:10, sand:peat root zone) in 2005 and sodded to 'Greenwich' velvet. The collars were then also sodded to velvet but were changed to Penn Trio, creating a wonderful



**A "bad" area on Belmont Country Club's VBG greens, also two weeks post aeration**



**Shelter Harbor putting green two weeks after fall aeration event.**

contrast in color. Mike's maintenance practices are again familiar to us all: Toro Flex mowers at .110", .10 # N/M and .125 oz Primo Maxx/M every 10-14 days, verticutting and topdressing every 14 days and periodic rolling, resulting in Stimps of 11-12'. Topdressing is not dragged in; Mike and his crew brush it in with soft shop brooms, greatly reducing the stress of vehicle traffic. Echoed by each superintendent is that verticutting is necessary when topdressing since velvet creates such a tight and upright canopy. The canopy must be opened for sand incorporation, even when using 1.5 mm sand. Next year Mike wants to go down to 1 mm sand to further aide sand incorporation. Irrigation is supplied by daily handwatering, which is on the extreme but Superintendents

love what we do and will stop at nothing for the best results! With that said, Mike and his general manager both stated the members would not trade their velvet greens for anything else. They love the color and playability of the velvet greens. It was an absolute pleasure to visit with Mike (and the past Superintendent) about the wonders of velvet greens!

My last stop was at a family-designed and -operated 18-hole public course built on, of all things, old cranberry bogs. Green Harbor Golf Club, located in Marshfield, MA, was built by Manuel "Manny" Francis, Sr. in the 1970s. Manny Jr. and Manny III now manage the property and were delighted to hear that I was from the #1 cranberry producing state (which is oddly somewhat centered around a