

Winter Summaries-

(Continued from Page 9)

were no differences in relative hardiness levels and the plant grew on normally after the freeze test, which might indicate that there was no damage from the treatments.

The Effect of the Plant Growth Regulator Primo on Winter Hardiness Levels (2004)

By Jim Ross, M. A. Anderson and Darrell Tompkins

Turfgrass growth under winter covers in early winter and spring is thought to be a problem for overwintering putting green turf in cold climates. Considerable growth reduction in the spring under a winter cover was observed following a single fall application of Primo MAXX at an Alberta golf course. As a result, this trial was established in order to determine the effect of the growth regulator, Primo MAXX, on fall hardening and spring dehardening of annual bluegrass (*Poa annua*).

An initial pilot study was conducted during the winter of 2003-04 where a single application of Primo Maxx was applied at three different rates in the late fall to an annual bluegrass (Petersen's creeping bluegrass) putting green located at the Prairie Turfgrass Research Centre in Olds, Alberta. Individual treatments were then subjected to various dehardening temperatures for various periods of time. After a freeze test, plants were re-grown and their relative hardiness levels were assessed. Due to an equipment failure during the secondary hardening stage results of the trial were inconclusive.

In year two of the study there were also no significant treatment differences when evaluating fall relative hardiness levels. Application rates and timing of Primo MAXX were evaluated in this study. For all treatments, the LT50 values for the plants were -19°C.

Spring hardiness levels will also be determined in order to evaluate the product for its effect on slowing the loss of hardiness as a result of temperature increases in the spring.

Strategies for Removing Ice from Annual Bluegrass Golf Greens (2004)

By Darrell Tompkins, Jim Ross and M. A. Anderson

Ice cover on annual bluegrass (*Poa annua* L.) putting greens often causes damage in the cold climates of North America during long winters. The objective of this study was to evaluate various ice removal strategies for use on annual bluegrass putting greens. In addition, the

various products were evaluated for their phytotoxicity (damage caused by the product) to the turf. An initial screening study was conducted in order to choose the best treatments for the field study. Selection of treatments was based on effectiveness (efficacy) and phytotoxicity of the products. Results of the three separate field tests showed that there was no benefit to covering the turf. As far as the individual treatments were concerned, the Landscape and Alaskan ice melters and the methanol softened the ice more than the other treatments. The two granular ice melters melted the ice the best and were best at reducing the bond between the ice and the turf surface. However, in year one these two products also produced some toxicity, while the other treatments did not.

Wear Tolerant Grasses for Use on Sports Fields in a Cold Climate (2003)

By Darrell Tompkins, M. A. Anderson and Jim Ross

This trial was established in order to determine the wear and cold tolerance of various grasses for use on sports fields in the Prairie Provinces of Canada. An initial screening of 48 different grasses to determine their cold tolerance was conducted in a controlled environment during the winter of 2002-03. From this, 21 grasses were chosen for the field study component of this trial. In addition, *Poa supina*, a *Poa supina* and Touchdown Kentucky bluegrass mix, and the City of Calgary standard sports field mix were added to the treatment list. Cultivars of perennial ryegrass and tall fescue established more rapidly than did the Kentucky bluegrass cultivars, the *Poa supina*, the *Poa supina*/Kentucky bluegrass mix and the City of Calgary standard sports field mix. The perennial ryegrass cultivars that established most quickly were Fiesta 3 and Pick RC2, while Grande and SR8600 tall fescue were equal to the two perennial ryegrasses. On the second rating date, Touchdown Kentucky bluegrass, all four perennial ryegrasses and all six tall fescue were the top rated grasses for establishment.

The Effect of the Plant Growth Regulator Primo on Winter Hardiness Levels (2003)

By Jim Ross, M. A. Anderson and Darrell Tompkins

Considerable growth reduction in the spring under a putting green winter cover was observed at an Alberta golf course, which prompted the development of this trial. As a result, the objective was to determine the effect of the growth regulator, Primo MAXX, on fall hardening and spring dehardening of annual bluegrass

(*Poa annua*).

Strategies for Removing Ice from Annual Bluegrass Golf Greens (2003)

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Ice cover on annual bluegrass (*Poa annua* L.) putting greens often causes damage in the cold climates of North America during long winters. The objective of this study is to evaluate various ice removal strategies for use on annual bluegrass putting greens. In addition, the various products were evaluated for their phytotoxicity (damage caused by the product) to the turf. An initial screening study was conducted in order to choose the best treatments for the field study. Selection of treatments was based on effectiveness (efficacy) and phytotoxicity of the products. Results of the field study that was conducted in March 2004, are preliminary in nature. The clear polyethylene and the no cover treatments appeared to be superior to the black polyethylene cover. As far as the individual treatments were concerned, the two ice melters, Landscape and Alaskan, appeared to soften the ice more rapidly than the other treatments.

Evaluation of Winter Covers for Prevention of Freezing Injury on Putting Greens (2001)

By Jim Ross

This trial was initiated in the early winter of 2000 to determine the insulating value of various winter covers and whether there was an effect on winter injury, spring colour and plant hardiness levels. Nine golf green winter covers were compared against an uncovered control. Covers were installed on greens at four golf courses throughout Alberta. Temperatures were collected twice a month from November to the end of February and then three times per week in March and April to determine the effect of the covers on temperatures at the crown level of the plants. Colour rating, area cover and plants hardiness levels were also conducted in April.

The two sites at Innisfail and Edmonton were severely damaged from winter injury as these golf courses were without snow cover for most of the winter. Winter injury was as a result of freezing injury and desiccation. Those covers that prevented less than 50% winter injury at Edmonton and Innisfail were Gridlock #2, TurfPro #1, and TurfPro #3. Those best covers that prevented winter injury at Calgary and Red Deer were TurfPro #3, and Gridlock #3 and #4.

(Continued on Page 12)

Winter Summaries-

(Continued from Page 11)

Those covers that insulated the greens from low temperatures in winter were Gridlock #3 and #4, and TurfPro #1 and #2. Those that showed the least insulation properties during low temperatures were the uncovered control, Albarrie #1, Gridlock #1 and #2, and TurfPro #3.

Those covers that insulated against warm temperatures and kept the turf cool in the spring evaluations were Albarrie #1, Nilex #1, and TurfPro #1. Those that showed poor insulation properties and heated the turf were Gridlock #3, TurfPro #2 and #3.

There was the greatest retention of winter hardiness for annual bluegrass under the Albarrie #1, Gridlock #4 and TurfPro #3 covers. For creeping bentgrass the best hardiness levels were the uncovered control, TurfPro #3 and Albarrie #1. Those that showed the least hardiness for annual bluegrass were TurfPro #2 and Gridlock #3. Those that showed the least hardiness for creeping bentgrass were Gridlock #1, #2 and #4 and TurfPro #2.

Control of Winter Injury Caused by Ice Cover on Annual Bluegrass and Creeping Bentgrass (2000)

By Darrell Tompkins,
Jim Ross and D. L. Moroz

A lab study compared the effect of ice cover and ice encasement with a control treatment (no ice) on annual bluegrass (*Poa annua*) and creeping bentgrass (*Agrostis palustris*) plants. Generally, snow covered plants maintained cold hardiness much longer than plants that were ice encased. Cold hardiness levels for the ice covered plants were intermediate between the other two treatments. This effect was much more pronounced for annual bluegrass than for creeping bentgrass. For annual bluegrass, after 60 days, cold hardiness levels were: -180 C for snow covered plants, -100 C for ice covered plants and -20 C for ice-encased plants. By 90 days, ice encased plants were dead. By 120 days, the ice-covered plants were dead. For creeping bentgrass, the same trend occurred, but the loss of cold hardiness was greatly delayed. Therefore, at 150 days the snow covered plants had a cold hardiness level of -20 C compared to -180 C for the ice encased plants.

A related field study compared the effects of: snow cover, snow removed in February, ice cover and ice removed in February for annual bluegrass and creeping bentgrass plants. Annual bluegrass plants that had been ice covered had very little cold hardiness after 60 days and were dead by 5 days. Creeping bentgrass plants in all treatments could tolerate temperatures below -280 C after 90 days.

Evaluation of Winter Covers

for Prevention of Freezing Injury on Putting Greens (2000)

By Jim Ross

This trial was initiated to determine the insulating value of various winter covers and whether there was an effect on spring colour and plant hardiness levels.

Four golf green winter covers were compared against an uncovered control. The four covers were Evergreen permeable cover, Typar permeable cover, RPE Type 4 impermeable cover and an impermeable insulated turf blanket. Covers of 12 foot by 24 foot dimensions were installed on greens at four golf courses throughout Alberta.

Temperatures were collected twice a month from November to the end of February and then three times per week in March and April to determine the effect of the covers on temperatures at the crown level of the plants. Colour rating and plants hardiness levels were also conducted in April.

The insulated turf blanket showed the least fluctuations in temperatures while the RPE Type 4 cover showed the greatest heating. The insulated turf blanket and the RPE Type 4 cover had the highest colour ratings.

There was the greatest retention of hardiness levels under the insulated turf blanket when measured on April 10. The RPE Type 4 cover had the least amount of hardiness. Hardiness levels were measured for the Innisfail site only.

Control of Winter Injury Caused by Ice Cover on *Poa annua* and *Agrostis palustris* (1999)

By Darrell Tompkins, J.B. Ross
and D. L. Moroz

A lab study was set up to compare the effect of ice cover and ice encasement with a control treatment (no ice, snow cover only) on *Poa annua* (annual bluegrass) and *Agrostis palustris* (creeping bentgrass) plants. Generally, snow covered plants maintained cold hardiness much longer than plants that were ice encased while hardiness levels of plants treated with an ice cover were intermediate between these levels. This effect was much more pronounced for *Poa annua* than for *Agrostis palustris*. For *Poa annua*, at 60 days, cold hardiness levels were: -180 C for snow covered plants, -100 C for ice covered plants and -20 C for ice encased plants. By 90 days, ice encased plants were dead. By 120 days, the ice covered plants were dead. For *Agrostis palustris*, the same trend occurred, but the effect was delayed in time. Therefore, at 150 days the snow covered plants had a cold hardiness level of -20 C compared to -180 C for the ice encased plants.

A related field study comparing the

effects of snow cover, snow removal in February, ice cover and ice removal in February for *Poa annua* and *Agrostis palustris* plants was also set up. In 1999, *Poa annua* plants that had been ice covered were dead after 60 days. *Agrostis palustris* plants in all treatments were able to tolerate temperatures below -200 C after 90 days.

The Use of Synthetic Covers on the Overwintering of *Poa annua* and *Agrostis palustris* Golf Greens (1999)

By C. E. Miluch and Jim Ross

A golf green cover trial was established late in the fall of 1999 at four different golf courses. One replication was established at Edmonton Country Club, Red Deer Golf and Country Club, Innisfail Golf Club and Riverbend Golf Club in Red Deer. The treatments included an uncovered control, Hinsperger Woven Permeable, LP Typar Permeable Geotextile, RPE Type 4 Impermeable and an Insulated Blanket. Temperatures under the cover and depth of snow on the trial were monitored through the winter period. LT50 values under each of the covers will be determined, as well as colour and overall turfgrass quality in the spring of 2000.

Control of Winter Injury Caused by Ice Cover on *Poa annua* and *Agrostis palustris* (1998)

By Darrell Tompkins,
Jim Ross and D. L. Moroz

A lab study compared the effect of ice cover and ice encasement with a control treatment (no ice) on *Poa annua* and *Agrostis palustris* plants. There were no significant differences between the ice cover and ice encasement treatments. *Poa annua* plants were dead after only 60 days covered with ice. In contrast, *Agrostis palustris* plants had LT50 values of -260 C after 90 days of ice cover and -160 C after 120 days of ice cover.

A related field study compared the effects of snow cover, snow removed in February, ice cover and ice removed in February for *Poa annua* and *Agrostis palustris* plants. *Poa annua* plants that had been ice covered were mostly dead by late February, a period of about 40 days. *Agrostis palustris* plants in all treatments could tolerate temperatures below -200 C into April. However, plants from plots where the snow and ice were removed had reduced levels of cold hardiness.

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Musing the Minutes

By BRIAN BROWN
MGCSA SECRETARY



The MGCSA Board of Directors met on June 9, 2011 at TPC Twin Cities in Blaine.

President Paul Diegnau, CGCS called the meeting to order. Treasurer Paul Eckholm, CGCS reported that the dues are lacking a little and we need to keep our eyes on this for the future. Cash is up because of timing, mainly sponsorship and advertising money that came in. Membership is down about 75.

Executive Director Scott Turtinen reported on e-commerce options. Go-daddy.com does not offer a member only section. Course Trends quote has a \$1,500 design fee with a \$295 monthly fee. A new vendor was brought up that deals with the shopping cart and members only section. Turtinen will continue to contact other associations about what they are doing for these services. Spring Mixer had 35 golfers; Kathy O'Brien gave a good talk.

Fundraising

At the Vendor Appreciation Day there was talk about the 2012 Green Expo. Vendors gave positive comments about an electronic version of *Hole Notes* and the possibility of an on-line membership directory. Vendors expressed a desire for on-line payments to the association.

Minnesota Turf / Government Affairs

Paul Eckholm, CGCS, commented that not many bills have been passed at the Minnesota capital and that could cause a rather large Omnibus Bill.

MTGF

MTGF President Shawn Bernick addressed MGCSA concerns. The MTGF's Turtinen Communications, Inc. contract was recommended to continue. The Northern Green Expo programming will stay the same through 2014. MTGF is going to sponsor a one-day Aquatics event that will include training and testing. The MTGF is looking for ways to promote the foundation and TROE Center.

Research

Research Turf Tourney is almost over with a total funds raised record of \$18,500. A motion was passed to fund the TROE center for \$25,000.

Other Business

1. Logo golf shirts, flier with logo will be sent out to the membership. There will be three order dates: July 1, August 1, and September 1. 2. A question about board members receiving Gratis registration fees was discussed. A motion was passed that board members must pay full registration fees for events. 3. A suggestion to host a demo day for all the manufacturers' equipment was discussed. One manufacturer currently provides this and members would like to compare the different manufacturers. Site locations and distributors will be contacted to see the feasibility of this event.



The Savory Supe

By Scottie Hines, CGCS
Windsong Farm Golf Club



Grilled Salmon

Ingredients

1 1/2 pounds salmon fillets
lemon pepper to taste
garlic powder to taste
salt to taste
1/3 cup soy sauce
1/3 cup brown sugar
1/3 cup water
1/4 cup vegetable oil

Directions

Season salmon fillets with lemon pepper, garlic powder and salt.

- In a small bowl, stir together soy sauce, brown sugar, water, and vegetable oil until sugar is dissolved.
- Place fish in a large resealable plastic bag with the soy sauce mixture, seal and turn to coat.

- Refrigerate for at least 2 hours.
- Preheat grill for medium heat. Lightly oil grill grate.
- Place salmon on the preheated grill and discard marinade.
- Cook salmon for 6 to 8 minutes per side, or until the fish flakes easily with a fork.

Enjoy!

Scottie Hines, CGCS
Windsong Farm Golf Club

(Editor's Note: Do not feed raw salmon to your dog. Salmon can be infected with a parasite called Nanophyetus salmincola, a type of trematode worm. The worms themselves can be infected with a type of bacteria known as Neorickettsia helminthoeca. When dogs eat raw fish infected with this bacteria, they can show symptoms including weakness, vomiting, loss of appetite, swollen glands, and fever. Ninety percent of untreated dogs die. Cooking kills the worm and the bacteria.)

Wee One Golf Outing Set October 3 at North Oaks

On October 3, the Wee One Foundation will be holding its second Minnesota golf outing at North Oaks Golf Club in North Oaks, Minn.

As you may know, the Wee One Foundation was established to benefit families of golf course industry professionals who have suffered a catastrophic illness and need our financial help. It is because of your generosity that the Foundation has distributed over \$400,000 to families in Minnesota, Texas, Illinois, Wisconsin, Michigan, Iowa, Virginia, Arizona and Kansas in just over five years. In 2010, the foundation benefitted MGCSA member Tom Fuller.

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A VARIETY OF WINTER PREPARATION PRACTICES BY MGCSA MEMBERS

(Editor's Note: Golden Valley Golf & Country Club Superintendent Jeff Ische sent an email to a variety of MGCSA members asking them what they do to protect their greens in the winter and what they plan to do in the future.)

JEFF ISCHE

Golden Valley Golf & Country Club

At Golden Valley Golf & Country Club we use foam underneath GreenJackets on all of our greens.

I have been at GVGCC for the previous 8 opening days. The first year, 2004, the greens were covered by GreenJacket alone, no foam, and there was severe damage affecting about fi the greens. The second year I tried multiple options and the only thing that worked well was double covering with an insulating layer (either foam or Excelsior) underneath the GreenJacket. Years 3-7 we double covered all greens with foam and the green jacket and we came out of winter in good to very good condition, not perfect. Just one or two very small spots that we were able to quickly get sodded out. Year 8, this year, foam and GreenJacket did not perform very well. We had damage on 9 of our greens, ranging from 15 sq ft to 3,500 sq ft, all areas were very dead, both poa and bent (what little we have!).

I think that we will be making some changes, possibly going back to excelsior covers on a few of our greens that have good surface drainage and going to a better insulating material (possible excelsiors or even straw like those in Canada) underneath the GreenJacket. Additionally, we are looking into options for ventilating under the green jackets with back pack blowers, perhaps laying some drain tile on top of the grass to the center of the green or buying some of the product from green jacket for this purpose. Not sure how often the venting would need to be done, but would for sure do it if the ground doesn't freeze for a while after the covers are put down and again in the spring if frost comes out of the green before we are able to remove the covers.

JERAMIE GOSSMAN

Southview Country Club

We cover 17 of 21 greens at Southview. We use GreenJackets on all of these greens. Some of the covers are of original

design while others are the newer reinforced heavier cover. We use foam under six of the covers. This year we saw damage to four greens varying in size. The worse area was on the 11th green, approx 300 square feet. The other areas were much smaller in size and both poa and bentgrass were affected.

The damage happened only to greens that were covered with GreenJacket only. The four greens that do not get covers at all came through flawless and have very good surface drainage. The seven greens that do not get foam and that came through very well also drain well and could in my opinion go without covers. Of the six greens that do get foam we only saw snowmold damage under them. The foam and covers definitely create more disease pressure.

I covered two of the six greens with the AFS insulating foam that GreenJacket sells. This foam seems to be as effective as the packing foam for insulating. What I like about the AFS is it does not hold any water. It is very fibrous and water goes right through it unlike the packing foam. It does not compress very easily and allows for more air space between the cover and the green surface. It is very easy to put down and pick up in the spring, stores much drier, and is much more durable. I have used it for two years and have had good results. I plan on replacing all of the foam with the AFS. The only down side I have seen so far is it is four times the cost on the packing foam. I feel it is a good alternative to excelsiors if you are interested in putting any of them down under GreenJackets and it is a heck of a lot easier to install and cleaner.

DONNACHA O'CONNOR

Alexandria Golf Club

At the Alexandria Golf Club we cover the 12 greens with a history of winter damage. We use GreenJacket. Our issues range from wind burn to ice damage. We noticed a difference in turf quality between the older GreenJacket which sit more loosely on the turf than the newer, heavier material GreenJacket. Turf under the newer style cover looked great when removed but went into decline until June. This decline affected only the poa annua. The decline was most noticeable in the creases; our thought was a gas build-up under the cover and collecting in these

creases. We have not seen this type of decline since we began venting.

Tried insulation in a few spots, saw very little difference. Typically we get enough snow to avoid the extreme low temperatures. As a rule we wait as late as possible to put on the covers. The blue grass surrounds need enough frost to prevent the cover pulling loose. Pneumatic hammers work well to get through the frost.

This year had damage from snow mold. It was only under the covers. Seventeen green had a few patches of snow mold last year and lots more this year. Trend??

Summing up, I like the GreenJacket because they are very manageable. Wait for freeze-up before putting them on and take them off as soon as possible. Venting every few weeks from January until it's time to uncover seems to improve the odds.

JAKE SCHMITZ

Olympic Hills Golf Club

We had six greens that came out very well this year, another six that were okay and another six that were hammered.

Two of the last three years we have had some sort of damage to the greens, primarily from lack of surface drainage. The bird baths in 2009 and again in 2011 got nailed, and our lower holes in the marshy area sustained substantial damage, most likely from a high water table.

We typically apply a heavy topdressing going into winter. I will continue with this practice, but lighten the rate a bit and use the wide spin versus the meter-matic. Any overlapped areas this year sustained damage.

Olympic has never covered its greens, but damage to the same 4 greens in two of the last three years has prompted us to look into excelsiors. We will more than likely cover 6 greens total this year as we head into winter.

TOM PROSHEK

Brackett's Crossing Country Club

For the past 17 years here at Brackett's Crossing, we haven't used covers; however we have a couple of Evergreen/HPI covers on hand to utilize come spring if need be to kick start soil temps. We also needed to borrow couple of covers this past spring from Legends Golf Club as

(Continued on Page 18)

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Winter Practices-

(Continued from Page 15)

they have the same covers. We will be purchasing a couple more during off season to be ready if the need arises, and hopefully never to use them!

Way back when, we fertilized greens with Milogranite, heavy top-dress (after winter applications) and began the praying during off-season. The first couple years doing this process came with some success and more areas of damage where drainage is across the greens. When we'd get late fall rains, the Milogranite and top-dressing would pool in drainage areas and kill the turf. We stopped this process of fert and top-dressing and put up snow fences across greens that were on high ground (full 4' fences, wooden). This worked couple years, then we get couple years of deep snow fall, then we are out early spring shoveling the large drifts by the fence. Then thinking we should cut fence in half (now 2' wooden fence) and this worked much better, minimizing our need to shovel come spring as I really don't like to be on turf during spring melting if at all possible. Well year after year we were getting plenty of snow fall, so decided to abandon the snow fence practice and low and behold we come into years of 'lack of snow' - go figure. So

we've got back into the snow fence practice and about eight years ago we began late fall aeration. We aerated just after we closed, use fi" solid on Wiedenman, winter application and put up snow fence and began praying.

The next spring we saw little 'drying out' around aeration holes (not bad and recovered quickly); however, we decided to use needle tine (1/8" quad tines) at a depth of 5 - 6" and are currently using this practice. I truly believe that allowing these aeration holes open during late fall and throughout winter, allows late fall rains, melting of snow, ice formation etc, the turf canopy and roots to breath.

We had damage on four greens this year and I'd say of these four, one was worst with damage over / of green, other greens had spots ranging in sizes of large pizza to my office size (8 x 10). Areas of damage weren't all in low drainage areas, most were though. I feel we started to expose week after Northern Green Expo, had little desiccation, but the melting adjacent to these areas did the lovely freeze/thaw and proceeded to pool in my low area of green, hence damaged turf. What was tough to digest here, was I have a couple of greens with surface drainage and low areas on these greens, and we had no damage! I'm glad, but was a good head scratcher to say the least. The club was suppose to close Monday, Nov. 8, but

we decided to stay open until Wednesday Nov. 10 (Men's day). Last year we aerated our greens (needle tine) on Monday and Tuesday (Nov. 8-9), applied winter chemicals on Tuesday (Nov 9) and after course was closed, Thursday (Nov 11) we applied for the first time re-green at 8oz/1000 and we all know when it snowed (Sat) and it was my weekend to plow! Darn.

As far as changes, not many other than purchasing a couple more Evergreen/HPI covers and covering 3 of our greens with these covers to minimize desiccation issues we've been having more often than we'd like to see. We also won't spray re-green, rather transitions or something similar, little too much damage to our sprayer with re-green.

JIM NICOL, CGCS
Hazeltine National Golf Club

At Bunker Hills I used Excelsior blankets on part of greens and found a distinct line of Poa incursion in the covered area vs the uncovered area.

When I arrived at Hazeltine they had used Excelsior with poor results and cheered when they were burned. We would monitor ice formation and when the melting began at the crowns we would

(Continued on Page 19)

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Winter Practices-

(Continued from Page 18)

remove snow. With the higher sun angle in March the ice would go pretty quickly. Once they dried (important) we would treat and cover with HPI or a woven plastic cover. We had pretty good results with this method. Areas prone to wind did suffer from desiccation. Because of the positive results we were seeing from the GreenJacket and foam on other courses we began that practice.

For the past three seasons we have used GreenJacket with the foam. We would deep tine prior to installation and utilized approximately 2000 sand bags. We have not used the stakes inside of the perimeter of the green. We had some issues with bird bath areas. This past season we were able to cover 8, 10 and 16 greens. I waited because they were still growing. Very gun shy with them not hardening off and figured when the rest were covered with snow and would deal with it later. The 10 and 16th green were open during January with -40 degree wind chill but the cover was intact. The other greens we monitored the ice, and snow was removed in mid-March. They were treated and not covered. Some minor tip burn but all greens came through in acceptable condition.

I have been happy with the performance to this point and will continue. I see the air move under the cover when they are snow free. May use the venting product. I like the idea of the Excelsior under the Green Jacket.

I believe covers are successful nine out of 10 seasons no matter what is used.

MIKE MANTHEY **Midland Hills Country Club**

Midland purchased 18 GreenJackets with foam the fall of 2009. Prior to that, the greens were left uncovered during the winter. They had, from what I've been told, significant damage the spring of 2009 and had a poor recovery which prompted them to purchase the covers. I've been told that in years prior they had damage every fourth year, mostly from desiccation or surfaced drainage areas that iced up. They had also used EverGreens/HPIs on a few greens to experiment but did not see a difference in damage between those uncovered and those with EverGreens.

I started at Midland in the spring of 2010 and we had 4 greens with significant damage under the GreenJackets. Both Bentgrass and Poa (~50/50 mix) did not survive and sizes ranging from 20x20 to 70x50. We also had 4 greens with substantial tip burn which grew out over time.

Last fall I purchased Excelsior covers to put on those four damaged areas, then covered over the top with foam and

GreenJacket. I Verti-Drained those 4 areas with 1/2" solid tines to a depth of 10" and topdressed/drug in all greens prior to covering. All of those areas died again except those areas of death were larger this spring. There was no difference in survival between what had an Excelsior under the GreenJacket or not so I personally rule out lack of insulation from ice accumulation on top of the GreenJacket, which I had plenty of.

In total I had nine damaged greens this spring. Both Bentgrass and Poa were lost and sizes ranging from 20x20 to an entire green (11,000ft²). I also had 3 greens with substantial tip burn and lost some of that Poa but the Bentgrass did survive.

Two years in a row of what I consider significant damage is enough for me to make changes; status-quo is not cutting it. I will no longer use GreenJackets on those nine damaged greens from this spring and will switch to Excelsiors. I've never liked the idea of having a cover that can kill your grass on its own. No one knows how much CO₂ buildup is enough to vent, how long to vent, when to start the process and when it's safe to stop, etc. My subsoil is as black as night and does not perc out very well, even with

VertiDraining. I have 5-8" inches of top-dressing built up and some of my greens went into winter dryer than I would have liked. When we uncovered them, the damaged greens were soaking wet. We made sand bag lines on all of the slopes leading onto our greens to prevent surface drainage getting under the covers so I'm ruling out water getting in under the covers. We also do not stake in the middle of the greens so there are no holes in my covers but that might be a bad thing since a cross country skier went over our 15th green, poked holes in it, and the turf survived in that small area while the surrounding area died. Given how wet my subsoils were last year and how high the water table is right now, I assume I will be just as wet again this fall.

I'm becoming convinced from my own results that being able to breathe is easier with a paper/wood-fiber bag over my head instead of a plastic bag.

WES STONEBACK **The Wilds Golf Club**

At The Wilds Golf Club we have not used covers for several years. We had enough damage this year that we sodded spots on 8 greens and went through 3000 square feet of nursery. In 2010 we had about 300 square feet of damage and were able to put some covers on for a few days and things came right through. Prior years to that there was not much for death other than some desiccation in some very open spaces.

JEFF JOHNSON **The Minikahda Club**

We've been using greenjackets for the past 8 yrs. '04 was the worst year using them and that was w/o foam. Since then we've been installing w/ foam. The past few years we've come out of winter in good condition. This year our only damage was to our 1st green, a 20x20 section in the middle of the green. We have no plans on changing our current approach.

Since '04 we've monitored soil temps throughout the winter and last year monitored soil moisture prior to covering. Tactics we will continue in the future.

CHRIS TRITABAUGH **Northland Country Club**

We have used Excelsior covers exclusively for my time at Northland as well as many years before. This winter I left some edges of greens uncovered for experimental purposes. Most of those areas were better than the covered areas, while a few small areas were worse.

As long as we are covering I will continue to use Excelsiors. They do an excellent job for us.

We have experienced very little winter kill in my five springs. The past two years saw some slight damage to Poa in areas where water had flowed and ice had formed. Our greens have excellent surface drainage so we have no real "bird baths." Movement of water across the surface is our biggest concern.

I do not have any plans to change our covering practices, other than the possible reduction of covering.

JAMES BADE **Somerset Country Club**

At Somerset, the greens have a significant amount of old bent varieties. We cover 6 greens with HPI covers, four for wind and two for ice. We also top-dress heavy and drag it in. One year the sand was too thick and the freeze thaw cycle hurt the poa. We also put a fair amount of Sustane down on the greens (2-3-3).

This past year we did topdress but we didn't get the covers down. Two greens were weak, that we usually cover, but they rebounded very fast. The back of our fourth green took a hit, from the ice in November. I plan on getting some Excelsior mat for this area. Otherwise, we won't change a thing. In general the green sites are good for keeping snow as a good cover.

One other thing I would quickly add is, Somerset has really allowed me to take

(Continued on Page 21)

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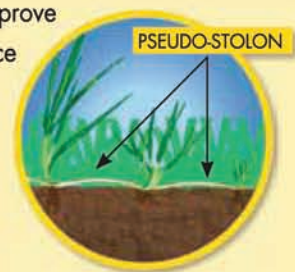
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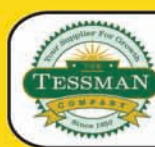
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