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Thursday, January 15

7:30AM - 7:50AM

Career Center: STMA PCI

10:10AM - 10:30AM

Career Center: Steve Farber's Extreme Leadership

Friday, January 16

11:00AM - 12:00PM

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Drainage for turf renovation

By Jeff Horan

It is routine for many sports turf managers to deal with saturated soil conditions throughout the wet season. Different types of drainage, drainage materials and drainage designs all have an application. Parking lots, cut off drains, and dry-wells each have a different design and material criteria. This article is a closer look at a drainage application for natural grass, native soil and/or amended soil sports fields. Sports turf managers can adopt this application to solve drainage problems at their own facilities.

Even though you may have drainage on a field, it doesn't eliminate the possibility of saturated soil conditions. Drainage that targets soil saturation will increase scheduled usage, increase maintainability, and reduce maintenance costs.

Surface drainage is essential and uses slopes, swales and catch basins to remove surface water from the field. Although good surface drainage can eliminate standing water it cannot reduce saturated soil conditions. Stand next to a storm inlet within a turf area during the wet season and you are experiencing complete soil saturation.

Subsurface drainage can be implemented as a solution to solve ground water problems and lower the water table. A perched water table is created with subsurface drainage because soils are layered. As water enters the soil profile each layer must reach capacity before water moves down to the next layer.

One analogy that helps visualize how water moves through a soil profile is to observe a kitchen sponge. Hold a kitchen sponge (soil)

in your hand and apply water (precipitation). The sponge will not drip water (drain) until reaching capacity. Layering soils produces the same results. In other words, soil saturation is a requirement for subsurface drainage to function. A perched water table is desirable when creating a complicated USGA golf green or possibly a sand-based sports field, but not so desirable with native soil or amended soil fields.

We call our drainage concept vertical column drainage. Drainage trenches are excavated and then a corrugated perforated pipe is installed with a continuous vertical column of permeable drainage material to the surface. One drainage material from top to bottom without layering is the key because collecting surface water before soil saturation occurs is our objective and, with this system, soil saturation is not a requirement for drainage to occur.

The best backfill material to reduce saturated soil conditions is sand. A logical thought pattern would automatically lead us to believe that increased permeability and a coarse drainage material like pea gravel will increase drainage rates and performance. Ironically, the most suitable permeable drainage material for vertical column turf drainage is sand.

Quality sports field topdressing sand or mason sand performs multiple functions in the turf drainage process. Sand is a permeable material that also supports a great environment for turf growth. Sand within the trench profile also bridges the adjacent soil and stops silts and sediments from contaminating the drainage system.

In this system, silts and fine particles from the soil do not migrate into the sand backfill. In addition, sand will continue draining the adjacent soil after surface water is no longer present. The finer texture of sand allows for better soil contact and increases drainage through capillary movement.

Turf drainage rates are limited by the rate in which water infiltrates through the surface. A larger aggregate material like pea gravel bedded around a drainpipe will not increase surface infiltration and the larger open spaces between the aggregate can allow fine particle migration.

Using a pipe in drainage is always more efficient. A drain pipe installed within the profile is really just an open void in the ground that allows water to move laterally from the force of gravity. Lateral water movement is much slower within backfilled trenches that have no pipes, even with coarse gravel. Field drainage is much more efficient when water can move in a pipe unobstructed.

Many pipe configurations will work just fine. Waffle panels, narrow or tall pipes, and round pipe will all work well when installed correctly. More important is how the water gets into the pipe. As water enters the trench, gravity overcomes surface tension and moves water down to a less permeable layer (trench bottom). As this water table accumulates it enters the pipe from the bottom and then moves freely within the void. Installed drainpipes should be surrounded in an envelope of sand with no soil contact; this will ensure that no sediments are introduced as water enters the pipe.

When installing vertical column drainage with a sand backfill you should choose a pipe with a small slit (approx. 1mm X 10mm) or a pipe with a geo textile wrap (sock). A pipe with a small slit or a fabric sock will bridge the sand at the pipe and eliminates sand from



migrating into the pipe. The Greenshield Systems uses a 2-inch corrugated perforated pipe with small slits eliminating the need for a sock. A geotextile sock around a pipe works great if it does not have soil contact or become clogged with fine particles. A sock can be used to protect a pipe with larger perforations from sand migration and the sand backfill protects the sock by stopping the fine particles.

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How far does your water travel?

The distance water travels over the surface or through the soil profile before intercepting a trench is directly related to drainage performance. Closer drain line spacing gives more dramatic drainage results. You will have better drainage performance with smaller pipes on closer spacing rather than large pipes on wide spacing. Smaller pipes and narrow trenches increase installation efficiency by reducing excavation and backfill quantities. Closer trench spacing is cost effective when installation efficiency is increased. Narrow trenches maintain a moisture balance with the adjacent soil and turf will not brown out under normal circumstances.

Drainage design and layout is just as important as the type of drainage you choose. Water should leave the site at the same rate in which it infiltrates through the trench profile. When starting a drainage project you will first need to locate a water outfall point lower than the target area to be drained. The outfall pipe can exit into an existing storm system catch basin or even daylight into a ditch or swale, but be prepared because water will exit this drainage.

After you have chosen your outfall point, the main collection pipe should run down the slope to the outfall point and the perforated drain lines which connect to the collection pipe should run across the slope. Perforated drain lines which run down the slope will not be effective if they do not intercept surface and sub surface water flow. The bottom of all drainage trenches should slope to the water outfalls point. When digging the trenches you will need to monitor and manage a depth, which gives slope to the trench bottom. The trench bottom should slope at least 6 inches per 100 feet of distance or .5 percent.

Install the drainpipe with the same accuracy in which the trench was excavated. The drainpipe should follow the slope of the trench and not be in contact with the adjacent soil. Before installing the pipe, lay down an inch of sand. Place the pipe, then backfill to the

The Greenshield System

The Greenshield Systems service concept is two-fold: 1) sports turf drainage that works; 2) effective and efficient specialized equipment. This patent pending trenching system elevates trench spoils into a material handler, while the pipe installation is performed with a hopper developed by the company, which lays the pipe as sand envelopes the pipe in a moving operation.

The trench excavation and pipe installation are two separate passes. Inspection of open trenches between the two passes allows checking for debris, irrigation breaks, and/or various infrastructures for a more precise drainage system. This technology enables the company to maintain the accuracy needed for good drainage performance and the efficiency to install up to 10,000 lineal feet of pipe per day.

surface. Make sure to compact the sand to assure no settling.

The turf cover over the trenches should be as permeable as possible. I recommend establishing new turf over the trenches from seed or sprigs. If timing is an issue, sand grown sod may be used. Installing silt grown sod over a sand trench will limit the drainage performance.

Some typical problem areas that can easily be solved in house by a sports turf manager are; perimeter of infield within the turf, between the hash marks of football fields, goal mouths, and minor depressions. Plan a drainage project for a specific saturated area within your facility and you will be on your way to better turf management. ■

Jeff Horan is co-owner for Greenshield Systems, Mt. Vernon, WA, jeff@greenshieldsystems.com.

John Mascaro's Photo Quiz

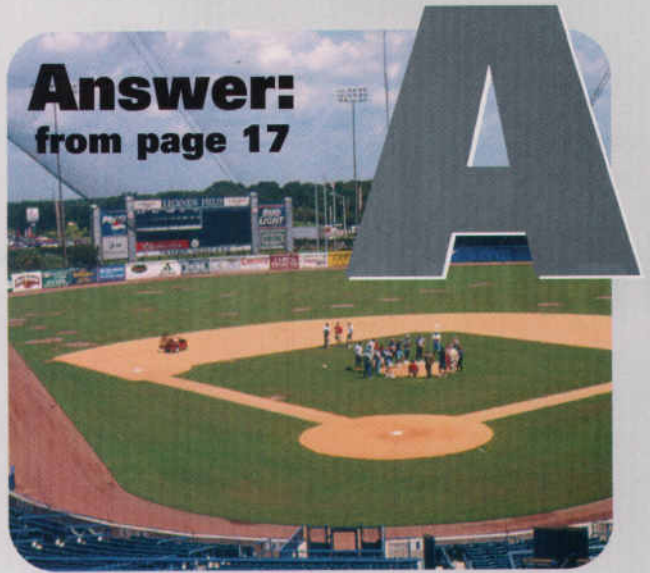
The missing sod is not a result of an undying fan trying to steal a piece of the legendary George M. Steinbrenner Field, the spring training home of the New York Yankees and home to the Florida State League Tampa Yankees. The missing sod is actually not a problem, but a management practice performed in the off season at this stadium. The field is grassed with 419 bermudagrass and from time to time off types of grass seem to appear in spots. Applying glyphosate to the areas is often a way to keep these off type areas from spreading; however it often has a limited suc-

cess rate because of the aggressive root system of bermudagrass.

The Sports Turf Manager at this facility opts for first spraying the area with glyphosate then removing the contaminated areas completely with a sod cutter. Next he installs new true to type sod in the place of the contaminated turf areas. This way he insures he has a mono-stand of one type of grass for the entire season.

Thank you to Richie Anderson, head groundskeeper at George M. Steinbrenner Field in Tampa for allowing me to take this photograph on the Florida Turfgrass Association Tour in 2002.

**Answer:
from page 17**



If you would like to submit a photograph for John Mascaro's Photo Quiz please send it to John Mascaro, 1471 Capital Circle NW, Ste # 13, Tallahassee, FL 32303 or email to john@turf-tec.com. If your photograph is selected, you will receive full credit. All photos submitted will become property of *SportsTurf* magazine and the Sports Turf Managers Association.

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Feeling stuck in the mud?

By Diane Stafford

This is the second in a series of six articles in the new Ewing Professional Development Series. STMA and Ewing have partnered in this series to bring sports turf industry professional development and career issues to the forefront.

In turf management, as in any industry, the way to re-invigorate a career—if not nab a promotion—may be through education.

Years of hands-on experience counts, but if you want a resume that attracts job offers, it helps to have a 4- or 2-year college degree, continuing education credits, and industry certifications.

Darian Daily, head grounds keeper at Paul Brown Stadium in Cincinnati, came to the job with a bachelor's degree.

"People like me who got in the big leagues in the past 5 years pretty much all have 4-year degrees in plant science or turf management or something similar," Daily observes.

"Right now, our industry is growing at a pace where there are a lot of 2-year associate degrees you can get in athletic field management, golf course management, turf grass science, and the like. It's almost to the point where a 2-year degree is a must to get your foot in the door."

Fortunately, many community colleges have the course hours and offerings that fit the schedules and needs of adult workers. Also, several universities offer distance learning curriculum in turf management that culminate in a degree.

But while it's vital to stay on top of technical developments in the field, it's equally important to buff up "people" skills.

Jeff Fowler, turf grass educator in western Pennsylvania for the Penn State Cooperative Extension, said turf management careers are more likely to stagnate because of faulty communication or management practices.

"Knowing the right fertilizer is essential, but the real breakdown in careers can come in personnel issues," says Fowler, who's lectured on the '7 habits of highly defective sports turf managers.' Those of us in middle management aren't managers by training, but leadership can be developed if you take advantage of all the resources out there on the Web, in bookstores, in podcasts.



Chalkboard image courtesy of istockphoto.com.

"If you're mowing grass with your MP3 player in your ear, listen to a management podcast some time instead of music. You can always learn something about dealing with people."

Along with technical skills, management training also may be available in classroom settings.

Daily, who serves as chairman of the STMA Information Outreach committee, acknowledged that it may not be financially feasible to "go back to school." Even so, there are plenty of other ways to update and enhance professional credentials in turf management.

That's a good thing, because the latest survey of STMA members found that nearly three-fourths of the respondents said they wanted to learn more about business and professional development opportunities.

One option is to attend the STMA's annual conference, held each January, which offers many concurrent continuing education choices.

The same STMA membership survey found that more than two-thirds of employers will pay all costs for members to attend the annual conference, and another one-fourth will subsidize part of the conference costs. In just a few days (and, for many, a relatively low cost) the equivalent of a college semester's worth of updated information can be had.

The association also offered a pilot regional conference this year, and plans to add two more next summer. In addition, 31 local chapters offer periodic continuing education seminars. STMA members also can take 14 courses online on the association website.

The ultimate goal, aside from gaining knowledge for knowledge's sake, is to obtain professional certification.

"Certification is a good tool to have," Daily said. "It makes a person more marketable."

Consider getting a commercial applicators' license, generally obtained through state agriculture departments. Some colleges offer half-day to two-day classes to help prepare for the test. Call the Ag department in your state to learn its test details.

Beyond a college degree and an applicator's license, a professional goal should be the Certified Sports Field Manager, or CSFM, credential. (Similar professional certifications exist for parks and recreation professionals and landscapers. All of them indicate a more than passing commitment to the profession.)

To keep the credential current once it's obtained, a hefty dose of continuing education credits is expected in the turf management industry. The association gives 0.1 credits for every contact hour of continuing education and asks for 3 credits to be accumulated over a 3-year period. That equates to about 10 hours a year of class or seminar attendance, usually obtained by attending association or state conferences or local chapter field days.

"Continuing education is the key," Daily said. "Keep maximizing your opportunities to professionalize your career. A sports field manager is a professional. Every Sunday, I have \$120 million worth of people playing on my field. I need it to be in good shape and managed with the latest information possible. Parks and Rec departments and schools have the same expectations."

In addition to surfing university websites to find some of the latest turf science research, Daily advised taking a basic business or finance class to buff up a resume.

"You don't need to get a finance or accounting degree, but you need to understand enough business buzzwords to keep lines of communication open with the business offices you deal with," he suggested.

The ability to understand a profit and loss statement is a plus. And all but essential these days is familiarity with basic computer programs such as Excel, PowerPoint, Word, and e-mail. Again, community colleges are accessible and relatively inexpensive places to find and take computer classes.

As stated at the outset, strong hands-on experience is the ultimate career enhancement; the proof, as they say, is in the pudding.

But the STMA membership survey found that 42 percent of its responding members held bachelor's degrees, 14 percent had associate's degrees and 13 percent had post-graduate degrees, while another 17 percent had at least some college.

That means the basic education bar is set fairly high for turf managers who aspire to rise in the profession. Add in the expected continuing education credit hours, and the need to pay attention to and take advantage of business and professional development opportunities is clear. ■

Diane Stafford is the workplace and careers columnist at The Kansas City Star. Her columns appear on Thursday and Sunday. In addition, Diane keeps up with the latest workplace news on her blog at www.workspacekc.typepad.com. She can be reached at stafford@kcstar.com.

STMONEY promotes "sports and the environment" collaboration

The Sports Turf Managers of New York (STMONEY) has launched a project on their website (<http://stmoney.org>) in collaboration with the New York team of the Global Sports Alliance (GSA). This new feature is called the GREEN Corner and focuses on up-to-date "sports and the environment" news and information as well as reports on GSA activities.

The Global Sports Alliance is an official partner of the United Nations Environment Program. Their mission is to promote environmental awareness and action among sports enthusiasts. The web page states, "In the coming months, STMONEY and GSA-NY will work toward strengthening this collaboration and forging a partnership in recognition of our shared commitment to 'consider the environment' in the management of sports facilities."—from Kevin Trotta, head groundskeeper, North Rockland Central School District.



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The impact of "going green" on sports turf

By Kevin Meredith, CSFM

I have been calling around the country doing interviews with sports turf managers to find out how they are dealing with the "green movement" and the impact that increased environmental regulations are having on sports turf maintenance practices.

I talked to Mark Frever, grounds supervisor at Albion College in Albion, MI, a man with a plan. This guy is way ahead of the curve. First, here's a quote that Mark wanted included with his information: "Let every individual and institutions now think and act as a responsible trustee of Earth, seeking choices in ecology, economics and ethics that will provide a sustainable future, eliminate pollution, poverty and violence, awaken the wonder of life and foster peaceful progress in the human adventure." -John McConnell, founder of International Earth Day.

Mark embraces this philosophy and has incorporated its basic tenants in his day-to-day management practices. In his words:

"During student orientation, the coordinator for the Michigan State University turfgrass management program, Dr. Trey Rogers, stood in front of me and said, "You will breathe, sleep and eat turfgrass until you are sick of the color green." Back then, 12 years ago, I could have never guessed the word green would change into the commanding signal word for the environment. It is my opinion, the origin of the buzz label, "green," came from a Michigan golf course superintendent or one of the many minds that organized the Michigan Turfgrass Environmental Stewardship Program (MTESP).

"The MTESP changed the way I managed a golf course when I was a golf course superintendent and I brought the program to Albion College. People were quick to point out that the MTESP is designed for golf courses and I would say that can be fixed with

"white out." The core of the program is organized in a three ring binder. I would simply cross out the word golf course and replace it with Albion College property. It was an easy transition. The staff of the MTESP supported my efforts because they understood, in Michigan, that environmental stewardship is not propriety to the golf courses. Golf courses have led the way in developing best management practices in regards to environmental issues. The Michigan green industry also has sod producers, lawn care providers and institution managers that could benefit from the MTESP program too.

"The MTESP program is divided into two sections, Pollution Prevention and Environmental Enhancement. The mission and further information can be found online at www.mtesp.com. The Pollution Prevention section has nine modules to apply to your property. Each module could stand on its own for an article. They are:

1. Site Evaluation
 2. Wellhead Protection
 3. Fuel Storage
 4. Pesticide Handling
 5. Pesticide Mixing and Loading
 6. Pesticide and Fertilizer Storage
 7. Equipment Wash Pad
 8. Emergency response planning
 9. Shop maintenance practices
- "The Environmental Enhancement section has resource sheets and appendixes on programs, agencies and associations that can become partners or part of your team in your environmental efforts. This section also includes fact sheets of environmental information that can be applied to any body of water like rivers, streams or pond on your property. They are:
1. The Green Industry Guide to Environmental Purchasing



Kevin Meredith, CSFM



Mark Frever

2. Buffer Zone Management for Golf Courses –
 - a. Buffer Strip Basics
 - b. Buffer Strip Techniques
 - c. Buffer Zone Vegetation
3. Michigan Business Pollution Partnership Program
4. Program Appendices
 - a. Water and Wastewater
 - b. Fuel Storage
 - c. Pesticides
 - d. Michigan Department of Environmental Quality (MDEQ) State Laws Related to Water and Land
 - e. Media

"In conclusion, the MTESP three ring binder stays on my desk for access to handle questions from students, faculty, staff, community and the media. Since adopting the MTESP program 6 years ago, I have become a member of the steering committee, representing Michigan Sports Turf Managers. Professors and students have invited me to environmental workshops. The program has turned the Albion College Grounds Department into a proactive environmental operation. As I said earlier, this is not proprietary to the golf course industry. The golf course industry needs the sports turf managers participation to continue the growth of programs like the MTESP."

Thoughts and comments

What I have come to learn from this adventure is that in general all the different sections of the country have the same problems or concerns. I know that water is huge in the South and West but water is an environmental concern everywhere. I know that pesticide usage has come under tremendous scrutiny on Long Island and that there are many sections of the country considering bans on inorganic fertilizers. What impact will legislation in one section of the country have on you?

There is an old saying that all politics are local. What that implies is that in order for any politician to succeed they must have the most basic support. Ideas and power ultimately come from the local level. The same is true when it comes to environmental awareness and what is now termed the green movement.

Think about this for a moment, when it comes right down to it, who is responsible for the most basic forms of environmental conservation? It is you, the individual that makes choices on a minute-to-minute basis regarding everything you do in your life. Let's take one example; plastic this seems to be a hot topic these days. Can you make a choice not to use plastic? Not very easily. But each of us can choose how we deal with the plastic when we are done with it. Recycle, reuse or refuse. Those are our choices.

Here are some numbers for you to think about as you make your daily choices concerning just one plastic item, plastic water bottles. How many of these are in your trash each day? I know these make up the bulk of the trash at the National Soccer Hall of Fame. Even with recycle bins!

Take a look at what I found on this website, www.endbottledwater.com. I received permission to use their text and statistics.

Facts about bottled water

Americans consumed more than 30 billions bottles of water in 2006 alone.

Less than 14% were recycled.

Twenty-six billion bottles were sent to landfills or incinerated. In landfills they take 400-1,000 years to biodegrade; during incineration, toxic chlorine gas and ash containing heavy metals are produced.

16.5 billion gallons of water were wasted; that's 2 gallons for every 1 gallon sold.

17 million barrels of crude oil were used in the production process; that's enough oil to fuel 1 million cars a year. This figure does not include fuel used in transportation or to generate power for storage.

2.5 million tons of carbon dioxide were discharged during production; again, this does not account for transportation or storage.

Bottled water costs 5,000 times more than tap water despite the fact that a large percentage of bottled water is just filtered tap water. That's up to \$10 per gallon.

"Because of the uncertain safety of tap water and the desire for convenience, Americans have created an unprecedented market for bottled water. This convenience has come at a steep price for both our pocketbooks and our environment. In 2006, Americans purchased over 30 billion bottles of water at prices higher than milk or gasoline. Approximately 26 billion of the waste plastic bottles ended up in landfills or in incinerators. Overall, we used the equivalent of more than 17 million barrels of oil to just manufacture the plastic bottles and this does not include the energy to transport, store and refrigerate these bottles on their way to our homes."

What does all this have to do with us being turf managers? Everything; because it is just one little item that we don't give a lot of thought to and it begs us to ask how many other items or products do we deal with each day that impact the environment in ways that we never think about? What is the big picture and what is our role in it?

As turf managers what are some of the things we can do to lessen the impact that our profession has on the environment? Here is a list that I developed based on my interviews and research, these are in no particular order of importance, they are all important.

- Routing- combining trips for fuel efficiency and manpower allocations.
- Reducing run time of vehicles and eliminating unnecessary usage.
- Elimination of 2 cycle engines by replacing them with 4 stroke or electric.
- Upgrading and increased monitoring of irrigations systems. This can be something as simple as rain gages on your field.

- Choosing newer cultivars of turfgrass that are more drought and disease resistant.
- Taking advantage of local and national educational opportunities that address environmental concerns.
- Be proactive by anticipating and being prepared for changes in the political climate and laws in your area.
- Look for ways to recycle or reuse items that in the past were discarded.
- Network, stay in touch with those around you and make every effort to share information and techniques.
- Investigate ways to make your facility more eco-friendly without breaking the budget.
- Consider plantings to shade buildings for energy conservation.
- Install energy efficient lighting and upgrade to energy saving heating controls.

I know that there are many more things that can be added to the list and I am sure that each of you has things that you have done to embrace the changing issue of environmental awareness. Keep it going and continue to develop and share your own list.

I don't think the green movement is about going all organic I think it is more about awareness. Sustainability is not only about resources it has to do with the way we get our fields to perform. If that takes more input of inorganic fertilizers to produce fields that are safe and playable then so be it. It doesn't mean that the common areas of our facilities can't be on an organic program.

Does it mean that we can't control invasive weeds with appropriate chemicals? I think common sense should be the rule.

Balance and planning can go a long way. The Green Movement is about looking at the future and asking the question, "What effect are my actions going to have on the environment and what can I do today to make it sustainable?" It is my responsibility to evaluate what they might be. I feel comfortable with a few weeds in my fields if it means reducing the input of herbicides but still having safe fields.

I am sure all of you have thought about many of the issues and ideas in this article at one time or another. I am also sure that many of you are well on your way to developing a sustainable maintenance program. I have only scratched the surface, there is so much more out there that ten articles might not cover all the information.

I hope the Green Movement has been demystified for those of you who are just starting to move in that direction. It is not a cult it is just an increased level of awareness.

If you have an idea about going green that you would like to share with the rest of us please contact me at kimered-ith1@gmail.com. ■

Kevin Meredith, CSFM is turf manager for the National Soccer Hall of Fame, Oneonta, NY.

Snow management tips

Honda Power Equipment offers these snowblower operational and maintenance tips for the upcoming season:

Check the snowblower's engine oil levels daily.

Check the machine's main wear items. These include the blower's skid shoes and the scraper bar; both are intended to rub along the ground as the unit is operated and can wear out even faster when trying to clear snow down to the bare pavement.

Note: Both the skid shoes and the scraper bar are, on many popular models, usually held in place by nuts and bolts. Operators should follow these steps for adjustment and replacement (but make sure the machine is **not running** while checking everything out!

- Place the snowblower on a level surface. For track-type snow blowers, step on the foot pedal and set the auger in the middle position.
- Loosen the skid shoe nuts and obtain the auger ground clearance for the appropriate snow conditions. Adjust the right and left shoes equally, and then retighten the nuts securely.
- Loosen all the nuts, holding the scraper, and adjust the scraper to the specified ground clearance. Be sure to retighten the nuts securely.
- Inspect the scraper and replace it if it is excessively worn.

A lack of power may indicate the need for a tune up where spark plugs are replaced and valves are adjusted. Black smoke coming out of the exhaust may indicate a "rich" condition, a common problem when operating at above 5,000 feet altitude. Here, your authorized dealer may suggest resetting the carburetor. For oil changes, tune-up intervals, information about replacement parts, and warranty information, refer to the owner's manual specific to the model.

Here are several good storage practices for snowblowers that help to ensure optimum performance and a long working life:

Because rust and corrosion will keep a snowblower from operating at peak performance, clean the auger housing with water and wipe down with a cloth before storing. Check the chute drive gear, shift and throttle levers, and ring gear; if any lubrication is necessary, do so before storing.

As with any gas-powered power equipment model, empty a snowblower's fuel tank or add fuel stabilizer before storing a snowblower for any length of time. This will make for an easy start on the next pull.

Check for any worn parts and order from the dealer as it is easier to replace what is needed ahead of the season's first snowfall. Check manufacturers service manuals for suggested maintenance schedules and keep good records for all equipment. Inspect all painted surfaces and touch up where needed.

This information supplied by Honda Power Equipment, www.honda.com