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September 1998

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 - 02 255 Landscape Contractors (installation and maintenance)
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 - 05 270 Tree Service Companies/Arborists
 - 06 275 Landscape Architects
 - 07 280 Land Reclamation and Erosion Control
 - 08 285 Irrigation Contractors
 - Other (please specify) _____
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 - 10 295 Parks
 - 11 300 Right-of-Way Maintenance for Highways, Railroads or Utilities
 - 12 305 Schools, Colleges, Universities
 - 13 310 Industrial or Office Parks/Plants
 - 14 315 Shopping Centers, Plazas or Malls
 - 15 320 Private/Public Estates or Museums
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 - 17 330 Cemeteries/Memorial Gardens
 - 18 335 Hospitals/Health Care Institutions
 - 19 340 Military Installations or Prisons
 - 20 345 Airports
 - 21 350 Multiple Government Municipal Facilities
 - Other (please specify) _____
 - 22 355 Extension Agents/Consultants for Horticulture
 - 23 360 Sod Growers/Turf Seed Growers/Nurseries
 - 24 365 Dealers/Distributors/Formulators/Brokers
 - 25 370 Manufacturers
 - Other (please specify) _____
2. Which of the following best describes your title? (fill in ONE only)
- 26 10 Executive/Administrator- President, Owner, Partner, Director, General Manager, Chairman of the Board, Purchasing Agent, Director of Physical Plant
 - 27 20 Manager/Superintendent- Arborist, Architect, Landscape/Grounds Manager, Superintendent, Foreman, Supervisor
 - 28 30 Government Official- Government Commissioner, Agent, Other Government Official
 - 29 40 Specialist- Forester, Consultant, Agronomist, Pilot, Instructor, Researcher, Horticulturist, Certified Specialist
 - 30 50 Other Titled and Non-Titled Personnel (please specify) _____

3. Is your golf course: 31 A Public 32 B Semi Private 33 C Private 34 D Hotel/Resort 35 E Municipal

4. If you work for a golf course, how many holes are on your grounds?
 36 1 9 37 2 18 38 3 27 39 4 36+

5. How many acres are maintained at your facility? _____

6. SERVICES PERFORMED (fill in ALL that apply)

- | | | |
|--|--|--|
| 40 <input type="radio"/> A Mowing | 45 <input type="radio"/> F Turf Fertilization | 50 <input type="radio"/> K Paving, Deck & Patio Installation |
| 41 <input type="radio"/> B Turf Insect Control | 46 <input type="radio"/> G Turf Disease Control | 51 <input type="radio"/> L Pond/Lake Care |
| 42 <input type="radio"/> C Tree Care | 47 <input type="radio"/> H Ornamental Care | 52 <input type="radio"/> M Landscape Installation |
| 43 <input type="radio"/> D Turf Aeration | 48 <input type="radio"/> I Landscape/Golf Design | 53 <input type="radio"/> N Snow Removal |
| 44 <input type="radio"/> E Irrigation Services | 49 <input type="radio"/> J Turf Weed Control | 54 <input type="radio"/> O Other (please specify) _____ |

7a. Do you specify, purchase or influence the selection of landscape products?

Yes No

7b. If yes, check which products you buy or specify: (fill in ALL that apply)

- | | | |
|--|--|--|
| 55 <input type="radio"/> 1 Aerators | 62 <input type="radio"/> 8 Herbicides | 69 <input type="radio"/> 15 Sweepers |
| 56 <input type="radio"/> 2 Blowers | 63 <input type="radio"/> 9 Insecticides | 70 <input type="radio"/> 16 Tractors |
| 57 <input type="radio"/> 3 Chain Saws | 64 <input type="radio"/> 10 Line Trimmers | 71 <input type="radio"/> 17 Truck Trailers/Attachments |
| 58 <input type="radio"/> 4 Chipper-Shredders | 65 <input type="radio"/> 11 Mowers (reel/rotary) | 72 <input type="radio"/> 18 Trucks |
| 59 <input type="radio"/> 5 De-icers | 66 <input type="radio"/> 12 Snow Removal Equipment | 73 <input type="radio"/> 19 Turfseed |
| 60 <input type="radio"/> 6 Fertilizers | 67 <input type="radio"/> 13 Sprayers | 74 <input type="radio"/> 20 Utility Vehicles |
| 61 <input type="radio"/> 7 Fungicides | 68 <input type="radio"/> 14 Spreaders | |

8. Do you have a modem? Yes No

101	113	125	137	149	161	173	185	197	209	221	233	245	257	269	281	293	305
102	114	126	138	150	162	174	186	198	210	222	234	246	258	270	282	294	306
103	115	127	139	151	163	175	187	199	211	223	235	247	259	271	283	295	307
104	116	128	140	152	164	176	188	200	212	224	236	248	260	272	284	296	308
105	117	129	141	153	165	177	189	201	213	225	237	249	261	273	285	297	309
106	118	130	142	154	166	178	190	202	214	226	238	250	262	274	286	298	310
107	119	131	143	155	167	179	191	203	215	227	239	251	263	275	287	299	311
108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
109	121	133	145	157	169	181	193	205	217	229	241	253	265	277	289	301	313
110	122	134	146	158	170	182	194	206	218	230	242	254	266	278	290	302	314
111	123	135	147	159	171	183	195	207	219	231	243	255	267	279	291	303	315
112	124	136	148	160	172	184	196	208	220	232	244	256	268	280	292	304	316



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Thunderstorms marched across Lake Erie the morning of August 25 booming and cracking and raking Cleveland with curtains of rain.

The crew at Pine Hills, probably like crews at other nearby courses, spent the morning on mop-up duty. Four or five inches of rain in a couple of hours is a lot of water. There would be no golf at Pine Hills this particular morning. That's one reason we at LM could spend a few minutes chatting with its superintendent, Brian Vickers. The LANDSCAPE MANAGEMENT staff had taken a day off in July and played Pine Hills, and met briefly with Brian afterwards. That's why we called him: we wanted to know more about him and the course.

Pine Hills GC is located about 10 miles south of us near Hinckley, Ohio, a growing but still-quiet community that takes some delight in celebrating the return of the turkey buzzards each spring. The course has seen lots of thunderstorms since its opening in 1957.

So has Vickers, now in his 28th year there.

For a public golf course, Pine Hills is a gem. It's one of the best public courses in north-central Ohio. At 6400 yards it's not particularly long, and if you strike the ball straight and play intelligently, you can score. Its rolling tree-lined layout offers few surprises and no tricks. It provides what every fine public course should—18 fine holes of golf at an affordable price.

Brian Vickers' story is undoubtedly like many other superintendents who started working on a public golf course while they were in high school, and found a career.

"I started at the very bottom just like everybody else—hand-mowing around trees, raking bunkers, cutting cups. I had to work my way up," he says.

Unlike many of his col-

GOLF

PAGE 4 G ▶

Valhalla readies for another PGA

PAGE 8 G ▶

A plan for lake purity

PAGE 16 G ▶

Myopia Hunt Club restored

PAGE 20 G

IPM at Collier's Reserve

PAGE 24 G ▶

Birkdale team a hit at British Open

The grass is greener here

leagues, however, he stayed put. To Brian the grass never looked any greener on any other course in any other part of the country.

"I've been fortunate because I've had some excellent mentors and I could follow in their footsteps," he says. "I've also have a good crew (his assistant is Trent Wash), including the young people here each season. They are either in high school or college, and we get some turf students from Wooster (Ohio) too."

Vickers (like most supers) doesn't seek publicity in spite of the fine job he does. He focuses on keeping Pine Hills' turfgrass first rate, and particularly its predominately *Poa annua* greens. His longevity at the course suggests that he does just that. **LM**

[SUPERS ON COURSE]

Ohio supers on the move

Andrew Knappenberger is director of golf maintenance at Quail Hollow. He was last at the Homestead in Hot Springs, Va.

Peter Bursan is new superintendent at Valley View Golf Club in Akron.

Craig Kachline is assistant superintendent at Canterbury Golf Club. He was last at Raleigh CC.



Vickers: good mentors help along the way.

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Recapturing PGA magic

How superintendent Mark Wilson and his staff plan to make Valhalla Country Club a site worthy of its second PGA Championship in five years.

By RON HALL/Managing Editor

Valhalla Golf Club bustles with activity for its second ever PGA Championship—and the tournament is still two full years away! The 13-year-old Club, located on a quiet country road just east of Louisville, KY, hosted the event in August 1996, and it will again in August 2000.

"I told my crew that I'm excited because I feel

pare—both its golf course and its facilities—for the huge galleries and the incredible media scrutiny of a Major.

Wilson and his crew—indeed, the entire club staff—want to leave as little to chance as possible in making their second PGA Championship every bit as successful as their first.

A big success

That 1996 event, played in near perfect conditions, showcased an immaculately groomed Valhalla that brought out the best of the world's best golfers. In that tournament, Mark Brooks broke the hearts of many Kentuckians in the gallery when he sank a 4-foot putt on the first playoff hole and finished off Kenny Perry, from nearby Franklin, KY. The Kentuckian had driven into the rough on the first playoff hole giving Brooks the opening he needed.

About 30,000 spectators stood shoulder-to-shoulder along the mounded, 540-yard 18th to witness the finish, and more are expected in 2000.

"The thing that strikes you is when you stand outside the club house and see the television towers and the helicopters flying over, and everybody being interviewed," says Valhalla General Manager Mike Montague. "You realize at that point that it's a little bit too late to fix anything. If you know where you want to be in August of 2000, you have to start doing it now."

Valhalla, and particularly the golf course maintenance crew, scored a virtual touchdown hosting its first PGA Championship. But, then again, Mother Nature smiled on Louisville all the 1996 season, concedes Wilson, a vigorous, friendly man who's seemingly always on the move within the

440-acre golf club.

"The golf course was so good that I sat here and wondered, how in the world did we do that?" he says almost wistfully. "It was one of those years where everything that we did worked."

As an example, less than two months before the tournament he seeded a large spectator parking area



The maintenance staff at Valhalla will concentrate on improving the roughs for the 2000 PGA.

like our preparations for the tournament really begin this fall," says Mark Wilson, CGCS, now in his 11th year at Valhalla.

The PGA Championship is one of the so-called "Majors" along with The Masters, The U.S. Open, and the British Open. These are golf's premiere annual tournaments. A host club needs months to pre-

with bermudagrass. Mother Nature obliged even then. "We got some rain and the bermuda took off," he recalls.

Conditions can change

The Eastern Kentucky University graduate is not counting on such wonderful cooperation from the fates in the year 2000. In fact, this season keeps reminding him that conditions can change, and fast.

"This year's been difficult," he says. "We had a very mild winter. It started raining in the winter and it seemed like it wouldn't stop and we had lots of weed and disease pressure. We couldn't get the pre-emergent down just right; the roughs aren't nearly as good as we'd like them."

While the presence of weeds in his fescue roughs is disconcerting, and the Club's wildflower areas didn't pop with as much color as he would have liked (he's considering sterilizing some of these areas with Basamid and replanting wild flowers, perhaps even annually), the course itself is in good shape. Even so, there's plenty to do.

Late this summer he and his crew began attacking bentgrass encroachment in the intermediate roughs lining the Pennway fairways. He estimates that he and his crew will take out and resod a total of about three acres of contaminated bluegrass.

"The guys were kind of worried about that much resodding, but we'll probably only do about 500 yards a week on the front nine and 250 yards a week on the back nine," says Wilson. "When you put it in that context, that's not a lot of sod."

Greens being improved

Thinking even more long-term, Wilson last season began improving Valhalla's Penncross greens; but gradually. He planted and carefully evaluated several of the newest bentgrass varieties in his 10,000 sq. ft. turf nursery. For comparison's sake, he established them beside the strongest bentgrass plants he gathered from the course's segregated Penncross greens.

Wilson realizes that he can't completely rebuild or strip Valhalla's greens; the Club is open to its 230 members year-round. Instead, he's been inter-seeding the greens with Penn G-2.

Several factors will determine the success of this changeover, he believes: failure to be aggressive enough in the process, timing of the seeding (about



Mark Wilson takes a well-deserved breather with his friend "Chase," one of the regulars at the Valhalla Golf Club maintenance building.

the third week of September for Louisville), and competition from existing turf. Proper preparation is crucial, he says.

The first step is to purposely thin Valhalla GC's Penncross greens. His crew will do this by lowering the height of cut and frequency. (Typically the greens are mowed at less than .125 inch.) They will also be rolling the greens. Then, about three days prior to seeding, Primo is applied to the greens, 2/10th ounce per 1000 sq. ft.

The actual renovation process involves verticutting the green two ways, then aerifying twice with half-inch tines. He then mixes the Penn G-2 seed with Milorganite in a cement mixer, and makes one application of the mixed seed/fertilizer. After top-dressing, brushing and spiking the greens, he seeds a second time. Then the green is gone over with vibratory roller, followed by the third and final application of fertilizer/seed, a total of 1 lb. of bentgrass seed per 1,000 sq. ft. The process takes about two days, he says.

After the seeding, the greens are kept moist, and aren't mowed for about a week. The bentgrass seedlings grow rapidly after being fertilized once a



Mark Wilson says that Valhalla GC is not heavily bunkered, but the 41 sand traps—including one new one—are strategically placed to capture the errant shot.

PGA highlights

Privately developed, the Valhalla Golf Club is now partly owned by the PGA of America, headquartered in Palm Beach Gardens, FL. Superintendent Mark Wilson says one of his crews most important tasks in hosting the PGA Championship will be establishing areas for the hospitality and media tents, for parking, and providing other logistical support in anticipation of the huge galleries.

Besides its Championship and Senior Championship, the PGA is responsible for the Ryder Cup, golf's premiere international tournament, and PGA member tournaments. Here are some PGA highlights:

1916, PGA of America formed.

1916, First PGA Championship at Siwanoy Country Club in Bronxville, NY, and won by British-born professional Jim Barnes.

1920s-30s, Walter Hagen wins 5 PGA Championships.

1940, Byron Nelson defeats Sam Snead PGA crown.

1942, Snead holes 60-foot chip shot for birdie on 35th hole and PGA crown.

1980 Jack Nicklaus wins fifth PGA crown, ties Walter Hagen.

1999 PGA Championship at Medinah Country Club, Medinah, IL.

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So far, so good

"I'm not sure how successful I've been so far," admits Wilson. "Our greens have been fine so far this year. Even if it isn't as successful as we'd like, it'll still be a good renovation program. You've got to tear up the bentgrass once in while because bentgrass has a tendency to get thatchy and puffy."

Next summer, Wilson and his crew (14 fulltime, 6 part-timers, and 6 or 7 interns) will begin fine-tuning the course's 41 bunkers, and making whatever other major final preparations the course will need.

Wilson sees himself as being both a leader and a mentor or coach. He seems to be confident enough of his abilities to delegate day-to-day responsibilities to three assistant superintendents.

"My job as a superintendent also means I'm a personnel manager, purchasing agent, and public relation expert," says Wilson. "I'm the orchestrator, and try to bring it all together. But sometimes I'm a substitute too, and I have to fill in with the daily chores."

Wilson says preparing for a major tournament like a PGA Championship is stressful, but it's a great motivator too.

"If I could package the excitement that flows through our crew just before and during the tournament I would be a millionaire," adds Wilson. "For me and my crew it's like being in the that state Little League Championship we never got a chance to play in.

"Actually, I guess hosting a PGA Championship is like being in a World Series Championship." □



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A plan for lake purity

Ponds and lakes are often mismanaged, lose their aesthetic value and eventually become worthless. Here is the latest on the dynamics which affect water quality to help you put together your program for lake and pond purity.

By HEATHER L. SCHWABE

Organic nutrients containing phosphorous and nitrogen are essential to plant life in lakes and ponds, but you must keep the nutrient level in an ideal balance to avoid severe weed and plant growth.

Aerobic bacteria will metabolize organic nutrients in the water making them unavailable for vegetation. When a pond is in balance, it has sufficient levels of oxygen in the water to allow the bacteria to breathe and digest these nutrients. If the nutrient levels rise, the bacteria cannot consume the nutrient burden and nutrient levels will swell. The result is dramatically increased plant growth, algae blooms and organic sludge build up.

Nutrients come from several sources: bottom sludge, dead organic material and fertilizers. The greatest source of nutrient in a lake is often found in the bottom sediment and dead organic matter. Algae typically has a two-week life cycle; when the algae die it sinks to the lake bottom forming an "aquatic compost pile." Over time, the amount of available nutrient in the water feature grows at increasing rates. Sediment build up also has significant impact on a lake's capability to store water. Research shows that sediment build up will occur at rates of 1 to 5 inches per year in temperate climates and these rates can be almost double in subtropical regions. Using that equation, a lake will lose 80,000

gallons per surface acre of storage capacity per year, and so begins the gradual consumption of the pond by organic sludge.

Fertilizer leaching into your pond or lake also contributes to nutrient loading. Two to four percent of the fertilizer applied near a lake can leach into the water. Fertilizer, which contains phosphorus, has

Temperature layering (thermal stratification) occurs when the sun warms the surface water of the pond, causing it to become less dense. This density and the varying water temperatures in the pond cause the water to become separated, or stratified into layers. The colder water settles on the pond bottom and the water gets warmer in layers as you near the surface. Certain solids will get suspended in these layers creating poor clarity. Because the surface layer will remain warm, algae growth thrives while the cooler water temperatures below help inhibit aquatic weed and algae growth.

Sunlight also plays a part in the aquatic ecosystem. In more shallow bodies of



The water in a lake should be turned over four to seven times a day.

been identified as the greatest single contributor to aquatic weeds and algae growth. Orthophosphorus, or dissolved organic phosphorus, has been identified as the number one limiting factor in aquatic vegetative growth. Levels greater than .05 mg per liter are considered high. When phosphorus levels exceed .1 mg per liter, nuisance populations of algae and aquatic weeds will abound.

water, the sunlight penetrates to the water bottom. These shallow areas are typically warmer which can accelerate plant growth. Green plants will only photosynthesize (grow) in the presence of sunlight. Aquatic weeds, algae, sludge build up, odors, and poor clarity are the most common problems and often, these problems are interrelated. There is good news however. If you address one problem, most likely the other

problems will systematically follow suit.

When considering lake management practices, it is important to keep in mind proactive and reactive or preventive and fixative strategies. Preventive strategies address the causes of problems while fixative strategies deal with the symptoms. Since many of the visible symptoms of poor water quality take a long time to develop, developing a proactive water management program is advisable. Most of the proactive approaches are biological tools which have a positive impact on the environment. Let's look at the proactive, preventive solutions first.

We must address nutrients in two ways:

- ▶ limiting nutrient run off into the water feature
- ▶ supporting aerobic digestion which limits the available nutrients in the water itself.

You can implement methods which will help divert the flow of nutrients into a lake. The goal is to keep the nutrients from reaching the water and if it does, keeping it from the open water zone.

One control method is **the introduction of wetlands** at the areas where water or runoff flows into the pond. The wetland area will slow the progress of water into the pond, reducing erosion and flooding problems and the intensive plant growth in a wetland area will act as a nutrient sink for the high nutrient water flowing into the pond. The plants in the wetland will actually absorb nutrients before they can reach the open water zone. This can result in a higher water quality due to lower organic nutrient levels. By creating a "no-fertilizer" zone from 5 to 10 meters (15 to 30 ft.) around the lake's perimeter, you will again help limit nutrient runoff into the water.

Depth and temperature are two key factors which we have reviewed. This makes the shoreline zone the most difficult area in the water feature to control or manage. When sunlight penetrates to the bot-



If the nutrient levels rise, the bacteria cannot consume the nutrient burden. The result is dramatically increased plant growth, algae blooms and organic sludge build up.

tom, the water can become very warm, and nutrient levels are usually very high. Typically this is where you will see aquatic weed and algae problems.

Lining the pond's bottom can be an effective tool in many situations; to help eliminate bottom rooted weeds, to improve clarity when the soil is easily mixed into suspension, and in sandy soils when the earth will not hold water. There are many different types and grades of liners depending upon the use. The most common is a PVC liner. Use of a UV resistant liner is suggested when water levels may drop or when sunlight may be able to penetrate the bottom.

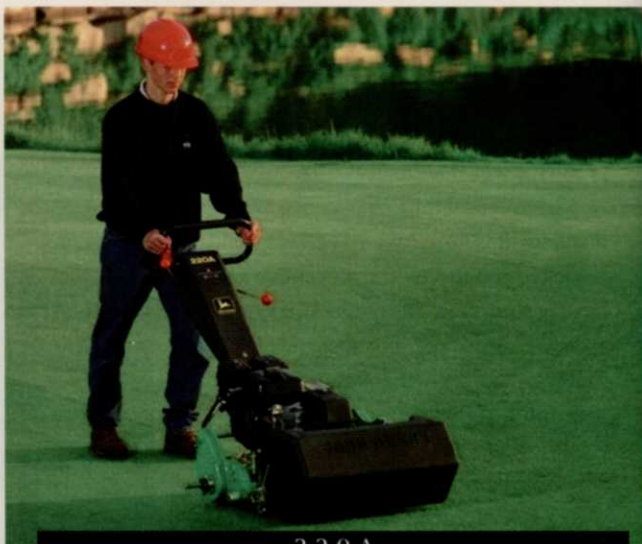
Aeration, fountains, and waterfalls are all common tools for lake management. All add oxygen and mixing in varying degrees. By adding oxygen the process of aerobic digestion is supported, lowering the nutrients available for algae and weed growth while helping to retard the growth of or even reduce the sludge bed. The water in a lake should be turned over 4 to

7 times a day. While waterfalls and certain types of fountains are helpful, they do not have sufficient mixing and aeration capabilities to be used as stand alone tools. Supplemental aeration and/or chemicals must be used.

Aeration is the most effective, long term pond and lake management tool. There are three types of aeration systems; surface spray, horizontal aspirators, and bottom diffusers. Each has a set of strengths and weaknesses which need to be considered. Surface spray aerators are the best choice when the pond is less than 12 ft. in depth and irregularly shaped. The better units add over 2 lbs. of oxygen per HP per hour to the water and add 2 mg/l of oxygen at depths over 10 ft. The circulation rate produced by aeration breaks through the thermal stratification and distributes oxygen to all parts of your pond. By pulling cooler water to the surface of the pond, algae growth is slowed and the water's pH level is lowered. This process helps reduce odors. Remember to check



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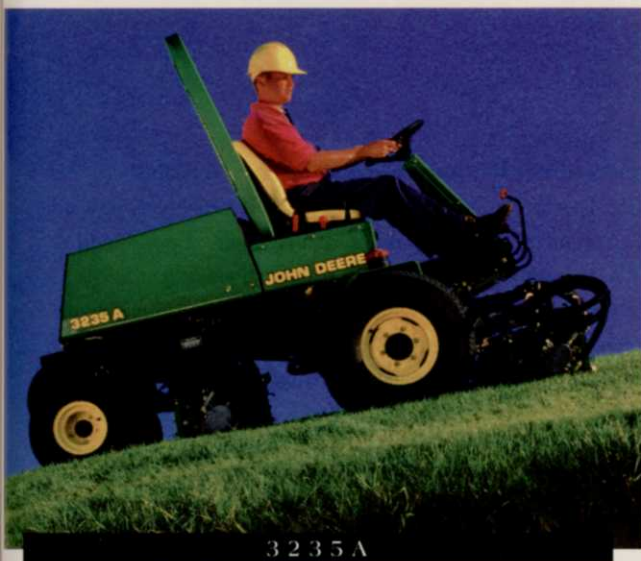
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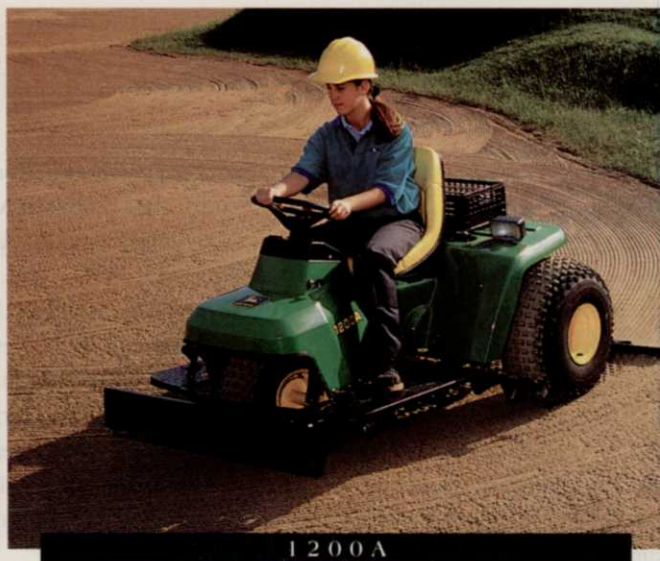
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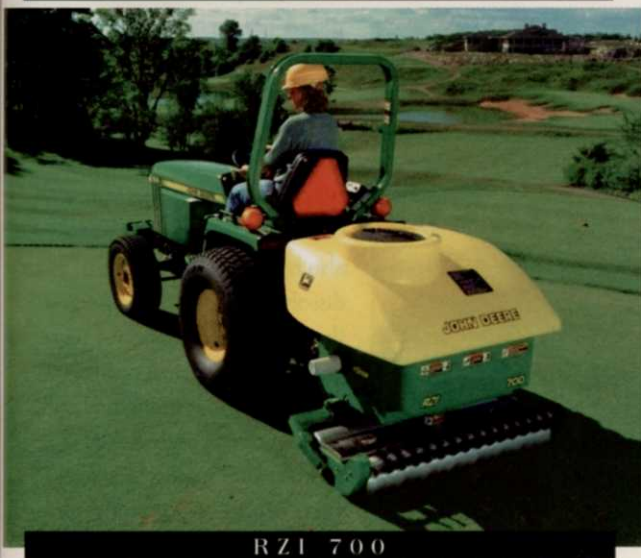




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Bottom diffused aeration is extremely effective in water 12 ft. deep or deeper. As the bubbles rise to the surface they transfer into the water column and circulate. Since the bubbles rise at roughly 1 ft. per second, pond depth is critical. These types of systems require 12 ft. in depth to

operate at peak efficiencies. Studies indicate that for every three foot decrease in depth, the systems relative efficiencies drop 50 percent. Contrary to popular belief they are relatively ineffective in less than 8 ft. in depth and should not be used in less than 5 ft.

Aeration is economical, supports the natural ecosystem and, most important, attacks the source of the problem - *continuously*.

Ozone is a relatively new approach to lake water quality management. They are especially good when clarity and foul odors are an issue. Corona discharge systems have 10 times the output of UV systems and have much lower operational costs. Regardless of the type of ozone system you choose, insure that the system is supplied with an oxygen generator, a certificate of output (in either grams per hour or pounds per day) and effective mixing system such as a diffuser system. Please note that aeration tubing will be ineffective in more than 6 feet of depth.

Another option available to you are lake dyes. Available in powder or liquid form, lake dyes prevent the sun's ultraviolet light from penetrating the water. Aquatic plants can't photosynthesize without ultraviolet light. Dyes are a good tool

to use when you have bottom rooted weed or benthic algae problems. Most dyes last six to eight weeks and should not stain signage, turfgrass or waterfowl. It's important to use products which have EPA or government approval. Lake dyes can only be used in lakes that have no discharge.

Chemical control is a common method of pond and lake management. Herbicides are applied to the pond to kill the algae and plants. This method is quick and ef-



Aeration supports the natural ecosystem and, more importantly, attacks the source of the problem continuously.

fective but may require the assistance of an aeration system to support its efficiency. A correct pond and lake management solution counters each problem in an effort to maintain the natural ecosystem of the pond. Because some plant life is essential to a naturally balanced ecosystem it is not advised to take a 'chemical only' approach. As we mentioned previously, many pond and lake management approaches will incorporate a few different methods of management. Many people believe that because it is not a natural treatment it should be avoided. However, chemicals are essential in some circumstances. Because chemical application requires permits to apply, you should discuss this option with an aeration systems or pond and lake manage-

ment specialist before you begin.

Bioaugmentation is a relatively new advance in the management of ponds and lakes. Aerobic bacteria are added to the lake which compete with the algae for nutrients. The bacteria make the nutrients unavailable for algae by locking them up in their own cell mass. In addition, they reduce suspended solids and improve water clarity.

Bioaugmentation should only be considered in ponds with a neutral pH. A pH higher than 9 will kill the bacteria. Temperature is also an important factor. In cooler waters, the metabolic rate of the bacteria slows, making it an ineffective alternative. The pond or lake must also have adequate levels of dissolved oxygen to support the increased demand for oxygen the bacteria will create.

Each pond is individual and will require its own special mix of water quality management efforts. What works for one pond might not be suitable for another. A proactive ap-

proach to water quality management is ideal, before a problem occurs. Once your pond or lake experiences water quality issues, it can quickly become a foul smelling, algae ridden eyesore. By remembering the factors which impact water quality you can make use of the proper management techniques to manage lakes and ponds, making them beautiful and functional for many years to come. □

The author is a marketing assistant for Otterbine Barebo, Inc., Emmaus, Pa.



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IRRIGATION™

Sweetbriar GC grows

New holes, a new clubhouse, a housing development and plans for better turf management give Bill Prest plenty to do at this Ohio course that's looking for an upscale image.

by TERRY MCIVER
Editor-in-Chief

Bill Prest was very relaxed as he moved back and forth in his swivel chair in early May.

By his calm demeanor, you wouldn't know he was a) new at Sweetbriar Country Club; b) was soon to begin a major construction project and c) was about to begin work on renovating tees and greens.

That must be what 32 years experience does for a superintendent. He may be faced with a daunting new project, but the time put in before that gives him an edge in the confidence department.

Prest began at Sweetbriar CC, Avon Lake, Ohio this year after 32 years at Springvale CC in nearby North Olmsted. He was a do-it-all superintendent at Springvale, to the point where he was even running the banquet facility. His total

management experience will come to the fore at Sweetbriar, but his priority will be the course reconstruction and grounds management.

The plan: golf and housing

Prest and owner/builder Barry Koff have 300 existing golf course acres in use for Sweetbriar's present 27 golf holes. Another 200 acres surround the golf course. This fall, construction will begin on the surrounding acreage to build six new, upscale holes, which will be incorporated into the original 18.

"The first redesigned six holes will be up this fall. Next fall, we will reroute the original 18 and incorporate the new six into it, with a net loss of nine holes."

"Then we start construction on a housing development in conjunction with what will by then be a new, 18 hole golf course," says Prest.



Tee renovation begins with core aerification, followed by heavy sand topdressing.

The entire project is expected to last at least three years, and the course will be open during construction. The plan is to make it one of the area's better public facilities, with a new, upscale look, with wall-to-wall irrigation; bent-grass greens, tees and fairways; three or four heights of cut.

"A true country club style of design," says Prest, the kind of look he was successful at bringing, here and there, to Springvale.

But the new Sweetbriar will be very playable and, affordable, though Prest does expect to lose some players with a hike in greens fees.

A 600-seat banquet facility will also be built, to be catered by a major Cleveland restaurant chain.

A local contractor is handling the earthmoving, Prest's crew will do shaping.

"I've never been involved in a total construction project, so I'm looking forward to it."

Prest is trying to get Audubon Cooperative Sanctuary certification during construction.

"We're going to look at environmental aspects right off the bat. In the new construction, some of the existing holes will stay, however, they will be reconstructed; we do have some very large pin oaks and white oaks we are going to try to save.

"I have some background there in developing some sensitive areas in construction zones which will be kept free of large equipment. I think trees are one of the most highly neglected resources on any golf course. I think it's changing at high-end courses, but a low-end facilities not much thought has been given to tree management."

Prest says a new tree care program by The Davey Tree Expert Company will be



Prest: being outdoors is where it's at.

a beneficial addition to the course's tree care plan.

New approach

Prest says his transition at Sweetbriar has been fairly easy which is fortunate since he came on with different ways of doing things and saving time, and since relatives of the ex-superintendent continue to work there.

Prest is a hands-on manager, who is getting his people used to his style and showing them just what he

wants done and how.

"Some of the new programs I've developed have been well accepted," he says.

"I changed the mowing philosophy. They did a lot of the mowing with high school and college kids. This meant that in spring and fall the remaining staff put in a ton of hours. We're trying to convert the mowing to retired people. That includes greens, tees, fairways and approaches and roughs."

The time they spend is minimal: greens require 21 hours/week; fairways require 18 hours/week; roughs require two on 40 hour weeks.

Prest seems to have a handle on employee retention. He's a 'nice guy' who knows how to talk to people, and knows the importance of mutual respect.

"There are a lot of kids out there that love to do this type of work, it's just a matter of finding them. You go through quite a few high school kids to get a crew."

The summer Sweetbriar

crew totals 22, and 10 are full time. Prest plans to go to a 30-person payroll by the end of 1999.

Prest's full plate is easier for him to handle since he now has a clean-cut job description: "golf and grounds, period."

"There's lots to do here, and I no longer have to deal day to day with the public aspect of other management duties."

To speed up the greens, Prest began a four-time/year aerification program. Also, he's been topdressing greens lightly each month, and he rolled the greens in spring. The standard aerification program combats compaction; same thing for tees.

"We're trying to develop a more aggressive stand of bentgrass."

Before this season began, Prest wanted



Trees that are to come down are marked with stripes.

to make "good first and last impressions" on golfers playing each of the Sweetbriar nines. Tees were thus overseeded with perennial ryegrass and Pennncross at 2 lbs./1000 sq. ft. The fairways on the first and last holes of all three nines were aerified first, and seeded with ryegrass at 5

lbs./1000 sq. ft. The ryegrass mix is a 39/39/18 mix of Legacy II, Linedrive and Assurance, purchased from Lesco. Pennncross bentgrass is Prest's choice for the greens and tees.

He knew what he wanted

Prest's golf course career began when he was in high school, working part time at Springvale. After that, he tried an indoor job that lasted 20 minutes.

"I signed up to go to a community college, and applied for a position as a night porter at Fisher Foods. The first night I got in there, they start showing me what to do; I was there 20 minutes and left.

"I went back to Springvale and told course owner George Biddulph I didn't have money to go to college. George ended up sending me to University of Massachusetts."

Prest has participated recently in the RISE/PLCAA/GCSAA "Ambassadors" program, which means to educate the public about the benefits of turfgrass and pesticides, and bring favorable attention to the expertise of Green Industry professionals.

"It's fun, it really is," says Prest of the Ambassadors program. "I've probably given 15 to 20 talks, and my experiences have been very, very positive."

Prest is one of a growing, but still small group of Green Industry "ambassadors". These golf superintendents and lawn care professionals speak in front of civic and school groups within their communities. They explain their professions, and talk about products and equipment they use.

Prest says audiences seem to be gen-



Tree damage from mowers helps explain why it's better to have one person at the wheel regularly.

uinely interested in his message. Even so, he acknowledges that some of the people he's spoken to "have some real concerns" over the use of pesticides.

"These concerns are usually unfounded, but they're there," he says. "You have to be prepared for this. Most people don't realize the education a superintendent has," says Prest.

"We're not all just 'grass cutters'".

Prest is managing the Sweetbriar course to improve it, not just to keep it in a holding pattern until new construction is completed. After being a general manager, he says it's good to get back on the course. □

Green, tee program

Bill Prest plans aerify and lightly topdress the Sweetbriar greens four times annually. Greens will be topdressed apart from aerifying another five times per season to keep them "tabletop smooth."

He wants to aerify and topdress tees at least twice during the playing season. Topdressing is done with straight masonry sand.

Par 3 tees are aerified a little more often because of heavy iron club use off the tee.

"On tees, I'm concerned about layering. So we core aerify the tees, leave the plugs, topdress, verticut, chop the plugs and mix in the sand." says Prest.

When aerifying and topdressing, Prest takes the opportunity to overseed tees with bentgrass and ryegrass to convert to bentgrass in three years

The pushup tees are heavy clay, so they must be careful not to end up with a layering and drainage problem

Bill uses Pennncross because he believes it is one of the most easily established and one of the most aggressive varieties available.

Prest says the LESCO ryegrasses are three of the most drought and disease tolerant ryegrasses available

"With 60,000 rounds per year you need something that will fill the divots"

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Superintendent Dave Heroian used today's knowledge and products to revive the charm of the historic golf course at the 103-year-old Myopia Hunt Club.

Dave Heroian has conflicting priorities as golf course superintendent of Myopia Hunt Club in South Hamilton, MA: bring the technology he uses on his 103-year-old course into the 21st century while taking the character of the course back to the 19th century.

"When I arrived at this course 11 years ago the roughs were mowed down to 1 ½ inches and highly maintained," says Hero-

ian, who graduated from the University of Massachusetts Turf School and holds a four-year degree in recreation management. "But a true links-style course doesn't have maintained roughs. The course also had added quite a few trees, which were not in keeping with the old-style look. The keys to a links-style course are wide open spaces with a lot of mounding, bunkering and tall roughs."

So Heroian set to work removing trees



A former farmhouse, the club house for the Myopia Hunt Club is 225 years old. The Club itself is 103 years old, with a links-style golf course, five polo fields, and fox hunting grounds. (Photo credit: Arthur Cicconi)

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and replacing them with mounds and bunkers. At the same time he stopped mowing roughs and let the fescues grow naturally. He and his crew also restored 25 bunkers to their original sizes and depths. They dug through the different layers of sand until they hit soil, which defined the shape and size of the initial bunker. In addition, they looked at old pictures and talked to the older members before making changes to the bunkers.

Taft's Bunker

"President William Taft was a member here in the late teens and early 20s, and one of the bunkers is named after him," says Heroian. "The story goes that every time he played the course, the crew made this particular bunker deeper. Well, Taft weighed more than 300 pounds and eventually they had to tie a rope around him to pull him out. We redid the bunker in 1992, taking it down to six feet deep. It's right in front of the green

and when you're in the bunker, all you can see is the pin and flag. We now have stairs leading golfers from the bunker to the green."

With 104 bunkers, most of them very steep, the Myopia course requires intensive hand labor. Bunkers are hand-raked and hand-mowed, and tee banks are all hand mowed. Heroian installed a new automatic irrigation system in 1989, but his crew still hand waters areas of the fairways and greens to minimize moisture in summer months. By cutting back on water, Heroian helps his bentgrass "beat out" the *Poa annua*.

"When I came here, fairways were mostly ryegrass and annual bluegrass—or

Poa annua," recalls Heroian, who was superintendent at New York's Rockland Country Club before coming to Myopia. "We overseeded with ryegrass for the first few years but then went to strictly bentgrass. Ever since we had the new irrigation system installed seven years ago we've been on an intense overseeding program to increase bentgrass populations.

"We started at 20-30 percent bentgrass, and at this point we have between 60-80 percent bentgrass."

For the past four years Heroian has



View from the second tee at the Myopia Hunt Club. The course's 104 bunkers are all hand raked and hand mowed.

used Progress herbicide as part of his bentgrass overseeding program. Each year he and his 14-member crew aerate and seed fairways in August, then come in with two fall applications of the herbicide. They apply the product at the rate of one-half gallon per acre in mid October and again in mid November.

Reducing Poa

"Each year we have less and less *Poa* and more and more bentgrass," says Heroian. "We cut back on water in late spring and early summer, too, letting fairways wilt a little bit. *Poa* doesn't like to be droughted out like that, so we get a jump on it before the season starts. We started picking up

clippings about the same time we began using Progress. All of these practices work together to reduce *Poa annua* populations."

Neither has Heroian experienced much of a problem with other weeds. While he previously made a preemergence herbicide application each spring for crabgrass control, he now uses just a postemergence herbicide on certain fairways. Other fairways receive no weed control treatment at all.

On fairways with areas of crabgrass infestations, he makes one application of Acclaim herbicide in early June, returning with a second treatment two weeks later.

In addition to the golf course, Heroian oversees a separate four-person crew which maintains the Myopia Hunt Club's five polo fields. Basically, the fields require only mowing and divoting. But the crew takes extra care grooming them for the East Coast Open, an interna-

tional polo tournament the club hosts each summer. This crew also helps with the riding stables and dog kennels, where hounds are housed all year for the fall fox hunts.

"People often feel like they've been dropped off in another country when they visit here," says Heroian. "We're definitely an old-style club and the membership wants to keep it that way. With the changes we've made in the course, bunkers now come into play like they did in the old days. At the same time, we've added some tees and increased the length of the course by 150 yards. Members seem to be happy with the mix of the old-style and the newer trends in golf." □



IPM IN ACTION

Golf course owners, designers and superintendents know that true Integrated Pest Management means you work within natural parameters.

AT COLLIER'S

Why plant tropical ornamentals in arid climates? Why spend thousands of dollars on integrated pest management systems that solve some problems but create new ones?

It's a gradual conclusion in a sport that has been judged as much by the rolling, green "perfection" of the terrain as by the challenges of the course. Now, native plants, pest-resistant turfgrasses and customized cultural or pest control practices are more accepted by management and some golfers.

These practices have been known to increase the environmental compatibility of a golf course as well as save money.

The IPM team at Collier's Reserve knows the ins and outs of the practice that has as many definitions as it does supporters.

The country club/residential community in southwest Florida has earned a special place in IPM history as golf's first Audubon International Signature Cooperative Sanctuary. As such, Collier's design, construction, management and overall phi-

losophy was developed in close relation to the Audubon Society's Principles of Sustainable Resource Management.

Model sanctuary course

Collier's Reserve is owned and developed by Collier Enterprises. Arthur Hills designed it, and popular and progressive superintendent Tim Hiers, CGCS, is the superintendent of the five-year old, 6,800-yard course, which is a beautiful blend of native vegetation and lower-maintenance turf strains.

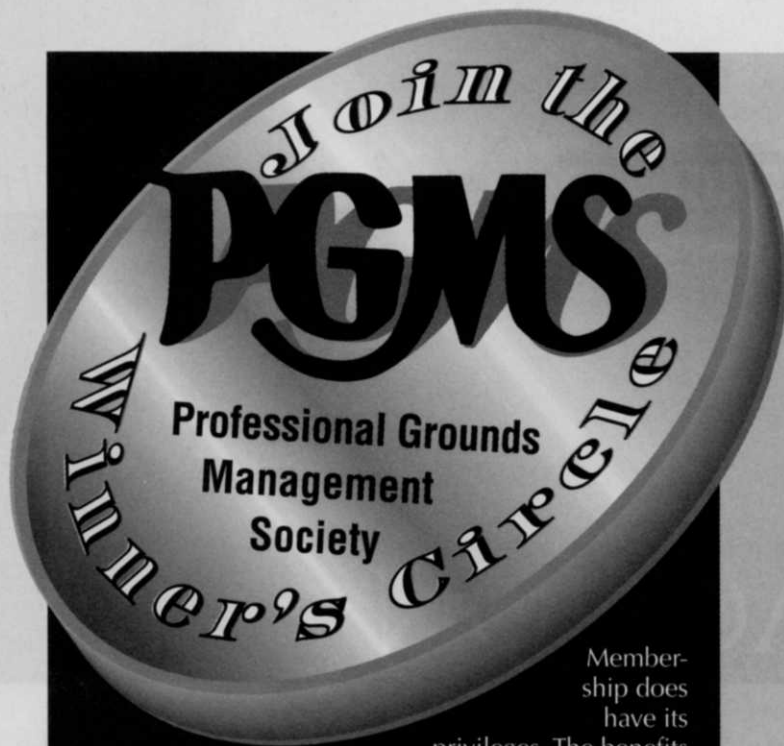
Rather than fight with the elements of nature, the Collier's crew uses the science of IPM and the conservation of natural resources.

Much of the reserve is set aside as a wildlife sanctuary for foxes, bobcats, otters, bald eagles, woodpeckers and many other animals. Every crew, building and management practice focuses on the environmental integrity of the land and the conservation of natural resources. This comprehensive, ground-up approach distinguishes Collier's from other maintenance procedures that were popular 20 to 30 years ago.

All irrigation heads, for example, are "site specific," which means water is used only where it is essential to sustaining turfgrass. Following this practice saves water and electricity, and reduces the ger-

'Two for one' tree planting

The Collier's IPM program is well documented, and very thorough. Cultural practices include aerifying fairways to maintain the right amount of thatch for turf health and pesticide effectiveness. While many programs stop with turf or pest management, this one also includes provisions for efficient power usage, water conservation, equipment choice and maintenance, employee training and recycling. Even a policy to plant two trees for every one removed.



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mination of unwanted weed seeds in native areas.

The difference is in the planning

"What makes us distinctive as a golf course is that we planned on leaving a lot of native area," says Bill Davidson, assistant golf course superintendent at Collier's. Irrigated turfgrass take up less than 76 acres around the course. Native vegetation is limited to the periphery. It complements the course, and adds beauty and challenge to the game. It also saves time, money and resources by requiring less maintenance.

A preventive control program maximizes turf health and minimizes the need for fertilizer and disease control.

"We do a lot of monitoring," says Davidson. "Our philosophy is to avoid broad insecticide applications and treat only what we need to treat."

For example, careful vigilance for mole cricket nymphs enables early treatment



Davidson: saves time and money on maintenance.

and reduces overall pesticide applications.

"I can't tell you how many tanks of soapy water I have mixed up to check the mole cricket population," says Davidson. The water disturbs mole crickets and causes them to flee to the surface.

When pests exceed their IPM tolerance levels, crews use the least amount of chemicals to get the job done. Sometimes, this means

using biological controls—such as parasitic nematodes—to attack mole crickets.

"To keep mole crickets within the treated areas, I'm looking to buy a mole cricket mating call box," says Davidson. "It plays a CD that's supposed to attract 95 percent of the mole crickets to within seven feet of the box."

New product trial

In the summer of 1996, Collier's participated in a trial run of a new kind of pest control, from the *spinosyn* class. Now

known as Conserve SC Turf and Ornamental insect control, the product combines the efficacy of synthetics with many of the benefits of biological control.

The product is reported to control cutworms, sod webworms, armyworms and many other pests, for up to two weeks of control.

At the same time, it offers a "Caution" signal word, and was registered under the Environmental Protection Agency's Reduced-Risk pesticide program. The process means the product has less impact on the rest of the environment than most other products, according to DowAgrosciences.

"It has effective control for the small amount of material you need to use," says Davidson.

The challenges facing the golf course superintendent in this environmentally-conscious time will continue, despite the Green Industry's record or compliance and concern for the great outdoors.

Integrated Pest Management, in one form or another, will continue to expand the superintendents' tools for practical turfgrass management. □



Turf sod use increasing for golf courses

The percentage of all turfgrass sod purchases related to golf course development and renovation has nearly doubled in the last decade, according to a survey by Turfgrass Producers International (TPI), the international trade association of turfgrass sod farmers. In 1988, golf facilities accounted for 4.7 percent of all sod purchases. The percentage has grown to 8.1 by 1997.

"Turfgrass is being used in many more new course developments," says Doug Fender, executive director of TPI. "No longer just a remedy for poor construction or grow-in problems, sod has distinct environmental and aesthetic advantages over seed. But it is economics that truly drives the shift to all-sod use."

Installing sod creates an immediate maturity for a course and decreases grow-in and management costs as well as eliminating the need to rework washed out areas that traditionally amount to 20 to 30 percent of a seeded course.

In addition to speeding up construction, sod offers an aesthetic that can be a valuable marketing factor in promoting a golf course or home sales in a planned community.

"Sod's a perfect complement to the highly contoured golf course designs of today," says Fender. "Even fairways are getting solid sod because of sod's ability to control erosion."

In addition, Fender points out that industry innovations such as over-sized turfgrass rolls, washed sod and soilless sod are also driving turfgrass sod's appeal for use on every type of golf course.

New courses a source of inspiration

The introduction of a new golf course into a market does more than simply provide additional holes for play, claims Gordon Witteveen, a golf course superintendent at Toronto's Board of Trade Golf Club.

"There is no doubt that a new course with interesting design features forces all the courses already in that market to 'pull up their socks,'" Witteveen told over 60 members of the ASGCA at their annual meeting in Toronto, Ontario.

Witteveen pointed to Devil's Paintbrush in Caledon, Ontario, opened in 1993, where the use of sod bunkers triggered innovative thinking in many other Toronto area courses, including his own Board of Trade Golf Club. Working with ASGCA Past President Arthur Hills, the Board of Trade GC developed a master plan for renovation.

Alice Dye, president of the ASGCA, recommends that golf course owners and developers should give careful thought to their plans for both existing and future facilities.

"One of the best ways to stay competitive is to develop and implement a comprehensive master plan," she advises.

BIGGA members a hit at Birkdale

Members of the maintenance team at Royal Birkdale were in fine form during the playing of the 1998 British Open, as reported in the latest issue of *Greenkeeper International*.

"That there was not a blade of grass out of place was testimony to the course preparation," writes the publication, based in York, UK.

A 10-man team led by Chris Whittle and a group of volunteer superintendents were hard at work during the Open, and had very little time to rest.

The British and International Golf Greenkeepers Association held a competition for the fourth consecutive year to estimate how many bunkers the BIGGA Support Team would rake during the four-day tournament.

Overall, bunkers were raked a total of 1,140 times.

The BIGGA Greenkeeping Support Team has provided support to the resident greenkeeping team at every Open Championship since St. Andrews in 1984, reports *Greenkeeper*.

The 1998 team was comprised of greenkeepers from seven courses from far and wide across the continent.

ASGCA website helps developers and others with design issues

The ASGCA has designed its website, www.golfdesign.org, to assist those involved in golf course development. A comprehensive resource, developers, members of greens committees, permitting boards, governmental bodies and golfers, will find the site to be of value.

Visitors will find advice on everything from getting started developing a new golf course to redesigning an existing layout. One popular feature is 'Architect's Corner' which spotlights different holes and offers insight into what comprises an outstanding golf hole.

Somebody has to offer the lowest-priced lawn/landscape services in every market. Although lowest-priced doesn't necessarily translate into bad service or, in fact, an unprofitable business, it's a very, very tough niche to fill.

The operation with the lowest price for any service—and let's include any type of commercial lawn care or landscaping—has to: a) operate more efficiently (at a lower cost) than its competitors, b) sell and complete more work to generate as much revenues as the competitors do.

Either one is a tall order particularly in the lawn/landscape business where a guy can buy a mower and a small trailer, and start rounding up properties convinced that he can mow just a little bit cheaper than the other guy. The truth is he can—until he wises up or runs out of money.

Laying claim to being the lowest-priced commercial mower, applicator or builder (or even near the bottom of the price ladder) will probably get even riskier as the lawn/landscape contractor market continues to consolidate.

LandCare USA, The Brickman Group and TruGreen-ChemLawn are expanding rapidly in commercial maintenance. (See stories on pages 12 & 15 of this issue.) They're establishing themselves in as many major markets as they can as fast as they can.

So, what's this have to do with prices?

Plenty. Look to the lawn application business which is dominated nationwide by TruGreen-ChemLawn. Most competing independent application companies wouldn't want to go head to head with TG-CL on price alone. Generally, the smaller operation can't buy product less expensively than TG-CL. Nor does it have the same

[LANDSCAPE/GROUNDS]

PAGE 2 L ▶

Scapes excited about growth

PAGE 6 L ▶

Thrill rides and landscaping

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Why you shouldn't fear complaints

PAGE 12 L ▶

Build great ponds in a day

Offering lowest price is no advantage today



Ron Hall

RON HALL
Managing Editor

name recognition or marketing clout of a national company.

To survive and prosper the local or regional lawn/landscape business owner has to offer a level of service and customer satisfaction that exceeds the larger company. This requires continuing investments in equipment, employee training, customer education/communication, and marketing.

This is impossible if the local operator doesn't charge fairly for his services. **LM**

[PEOPLE & PROJECTS]

Blalock gets Argentina work

Blalock Design Associates, based in Birmingham, AL, will consult for the Argentine Soccer Association on the development of a new training facility for the country's World Cup and Olympic soccer teams. The project will consist of three new soccer fields and the renovation of four other fields. All seven fields will be ready for play in 1999.

NY students work rails

Landscape architectural technology students at Delhi College, Delhi, NY, are helping the Delaware and Ulster Rail Ride in Arkville, NY, to get a facelift. Students created designs that included stone pathways, gardens, picnic areas, and handicap access for the popular tourist attraction.



Industry growth evident at Scapes

*When you know how
to make money, it's
lots more fun. The
Scapes company is
having a blast.*

By TERRY McIVER /
Editor-in-chief

For this Scapes project,
the plan was to make the
design disappear within
the natural surroundings.

Eleven years ago Barry Schneider was an independent landscaper in Florida struggling to make ends meet. His desire was to move up in the landscaping world.

Opportunity knocked when a Scapes company manager hired Schneider to manage a landscape crew.

Schneider was hired to finish a landscaping project for a Trammel Crow office site. More work followed.

"I was excited about the kind of work Scapes was doing in Atlanta, like craning trees onto rooftop gardens, and doing landscaping for larger buildings, both of which I wasn't familiar with in Florida.

"I ran a couple jobs in Atlanta for a year and a half, and then a landscape architect we were working with in Atlanta told us he had some office work in Washington and would like to work with us there."

Schneider saw the Washington project through, and was inspired by the potential for more landscape contracting work in the bustling commonwealth.

"Things were booming; I saw an opportunity here. I sold some jobs and worked out of the basement of the house I had rented."

Steve Coffey, the founder of Scapes, also saw the area's growth potential, and was sold on the idea of a permanent branch office. In 1987, Scapes Virginia office was born. Sixty employees now work out of the Ashburn Branch.

Today, Schneider is a partner with industry stalwart Coffey, who founded Scapes 22 years ago in Atlanta. The company reports a combined annual revenue of \$8 million from commercial maintenance, residential design/build and snow removal (for commercial maintenance accounts). The company recently added waterscaping to its service offerings.

Profit can be fun

Schneider doesn't mind talking about the mistakes he made, because it's all in the past. And just maybe some other wide-eyed "landscape artist" will learn from his experience.

"When I owned my own business in Florida, I did not know my costs," says Schneider. "I joined Scapes and found that Steve Coffey was a master at knowing exactly what the overhead was, exactly how much each plant costs.

"It was something new to me. It's mind boggling that I did what I did for so long

getting into. Many people think their gross profit is their total profit. There's an entire other list of charges after that, and taxes.

"For a small guy working out of his home with a pickup truck, there's a chance that the gross profit is indeed what you're paying yourself, but you can't do the big jobs that way."

"Some people just have fun doing the work. I did. When I didn't know my costs, I was planting beautiful trees, doing beautiful landscaping, and I was very proud of my work. It felt good. But I had a problem with the checkbook. It was an ego thing to

do a nice job on a restaurant landscape. People will take on certain kinds of projects for low profit just so they can do it."

Will profitability ever become a standard within the landscape industry? Likely not, says Schneider, but the industry will grow in spite of the profitability problem.

"I think the few that know how to be profitable will always do it right and the few that don't, won't," says Schneider plainly.

Schneider believes education is a prerequisite if you really want to succeed in this business,

yet association membership is small when you consider the total number of companies in the country. When asked why he thinks that is so, Schneider thinks it again goes back to available cash.

"Those who don't know their costs don't have a lot of money," and therefore, can't afford memberships in Green Industry associations.

Serious about morale

The tenure of the Scapes field labor force is notable.

"Some of my foremen and laborers have been with me for six or seven years. It's the managers I find to be more of a challenge to keep for a longer time. I think



A Scapes equipment van displays the company's recent move into waterscaping.

without knowing any of that. I like plants, it was easy to do, I was successful at it and I did it. But I never had any money.

"At Scapes, the budget is king," says Schneider.

We track everything according to the individual job budget, including the hidden costs. It's hard to do. It takes a lot of time and it takes a lot of money to track it."

Faithful tracking of each and every hour devoted to a landscaping project is also a key part of the Scapes budget-conscious operation.

Schneider thinks young companies just starting out often fall into costing traps because they, "just don't know what they're

a manager gets to a certain point in his career and wants to go out on his own or wants a piece of the action. which is what Steve has done for me."

More career-minded people may be getting into the landscape business, but to keep them interested is something else all together.

To keep worker interest in the business strong, Schneider and Coffey want to do what they can to bring key employees in, "as partners in the success of the business."

"We've got the headquarters for America OnLine down the street, and I think there are more people interested in that environment [being indoors, working with computers]. "What we do is tough. It's long hours, it's hot, it's cold, it's wet, it's dry. The amount of time and effort it takes to be successful in this business is very demanding. Families suffer. It's something we all need to work on.

"To make it a 9- to 5-job would be extreme," says Schneider of the industry's tendency towards long days, "but we need to get to a 10-hour day."

Scapes employee incentive programs include a good profit sharing program, in which key employees, foremen and higher level workers share in a percentage of the company's profits.

But money is not the only motivator. The company knows how to relax, too.

"We try very hard to have fun," says Schneider. Leisure activities include Friday afternoon barbecues; company picnics; soccer games, and attendance at the recent Washington Capitals NHL playoff games.

"We try not to be too intense about what we're doing," explains Schneider.

Growth like never before

"The economy is incredible, and construction is booming," says Schneider as he describes the current business climate in the Virginia/D.C. area.

"I see office buildings going up everywhere. Those office buildings are going to

"For a small guy working out of his home and a pickup truck, there's a chance that gross profit is indeed what you pay yourself, but you can't do the big jobs that way."

become maintenance jobs. I see people buying huge residential homes with lots of landscaping and lots of turfgrass; the owners of those homes are going to want professional landscape management.

"Baby boomers are at the age when they're starting to have some money, and are spending it on landscaping and on interesting backyard environments."

The company's maintenance work includes mowing; edging; trimming; weeding; chemical and fertilizer applications, mulching and small tree pruning. Large tree pruning is subbed out.

It was three years ago that Scapes added waterscaping to capitalize on the trend, and to fill a niche.

"There's good profit in waterscaping," says Schneider. "There's a lot of fun to it, and it's not competitive, because a lot of people can't do it. It's something people might be afraid to try."

Schneider and Scapes never rest on their laurels. While successful, they nevertheless continue to take stock of how they're doing against the competition.

"I see other landscapers making money, doing something successfully, and it makes me think about what I'm doing, how I need to make more money, or need to have a nicer facility, have cleaner trucks, or put the guys in uniforms.

"If you were to look back 10 years ago,



Schneider: Don't take on landscaping work just for work's sake.

there were two or three companies that dressed their crews in uniforms. Now, 50 percent of the companies have uniformed crews. That's sort of an indication that there are smarter people in the business who are watching what's going on and who want to do what the successful businesses are doing."

It can happen to you

Barry Schneider's story is one of hard work and dedication, which ultimately led to success.

His industry growth from a crew foreman to a business partner has taken 11 years. And after helping to grow a successful business, Schneider wants to help other career-minded people he employs become successful, too.

Is the American dream still alive?

"Yes," says Schneider. "I do believe so." □

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Thrill rides and landscaping

An amusement park's scenery is a key part of its appeal, as LM discovers at Ohio's Geauga Lake

By JAMIE PETERS

Now 110 years old, northeastern Ohio's Geauga Lake amusement park shows little signs of its age. Two acres of new landscaping enliven the park grounds with a lush, youthful vibrance.

Registered landscape architect Andrew Sparks of Garfield Heights, Ohio, and Tony Monaco, co-owner of Land Design by Monaco Landscaping, Aurora, Ohio, worked together to create an Old West atmosphere in the Coyote Creek area of the park. The centerpiece is the park's newest ride, the \$10 million suspended roller coaster, "Serial Thriller". To compliment the ride's seven loops and twists, the landscape was designed in subtle spirals, which are most visible from the 120-foot peak of the coaster.

Beneath the ride, a seven-foot waterfall spills into a creek, which twists through the terrain, mimicking the coaster's sinuous form. Wisconsin Holey Boulders line the creek, enhancing the area's western-prairie aura. A 6,500 lb. Holey Boulder, with the ride's logo embedded in the stone, is an imposing sight at the ride's entrance.

For Sparks and Monaco, the amusement park was an opportunity to deviate from conventional residential and commercial landscape designs.



Andrew Sparks, left, and Tony Monaco saw the Geauga Lake project as a chance to move beyond conventional landscape design.

"We tried to keep things looking unusual and different," says Monaco.

South Carolina pine needles which blanket the slopes of the area serve an atmospheric purpose and prevent erosion. Weeping elms, mulberry and crab trees lean out on the slopes.

"We tried to get a certain number of plants that were sort of blown over and leaning, like in some of the western parts," says Sparks. "And then the creek running through gave us an opportunity to try a few other things. There are some water lilies, that will eventually spread and get bigger."

Fifteen varieties of grasses — some of which will reach 10-12 feet high — sprout in a tumbling, rolling motion; and won't need mowing, says Sparks.

"When you have an area this big, and you have a maintenance staff like they

have here, I think you can get away with some things that you can't get away with in other types of venues," he says. "I think the value of the drama and the excitement that those kinds of plants add to this type of landscape make it worthwhile. I don't use mulberry ever, but we had an opportunity to let a couple of plants just get huge and hang all over the place. Who cares how they're taken care of? There's an odd catalpa right up at the front entrance, and there's another mulberry down at the creek that I would never use anywhere else, but they will be perfectly fine here."

Near the roller coaster is a butterfly garden where many of the 1,800 grasses, plants and trees were planted. Sparks hopes they will thrive and fill out the 4,000-5,000 square foot garden. Among the unique plant choices, Sparks points out

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Don Ulrich
Head Gardener/
Irrigation Technician
Cincinnati Zoo &
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Cincinnati, Ohio

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Don Ulrich-Cincinnati Zoo



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the weigela shrubs, whose distinctive purple and yellow foliage varieties are appropriate for the park's atmosphere.

"That's what they [amusement parks] cater to--the unique and the unusual," says Sparks. "If it doesn't startle or surprise people, what good is the ride? And with this landscape, I think we had the opportunity to do the same sort of thing."

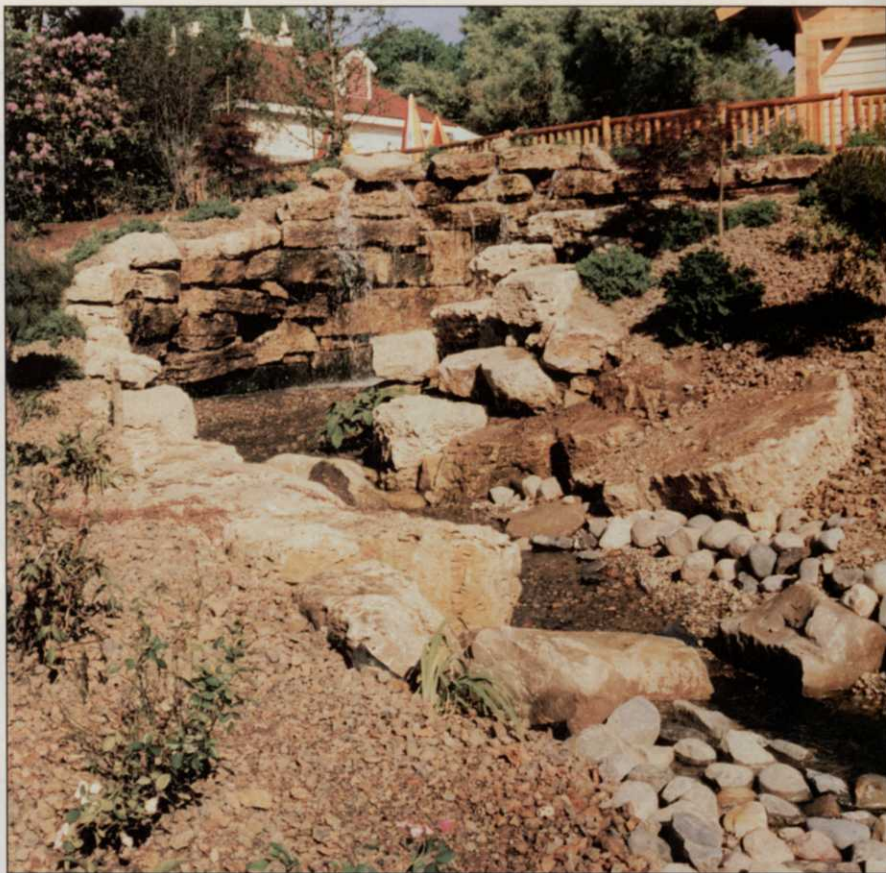
When choosing plants for the area, Sparks had to take the park's seasonal operation into account.

The parks cater to the unique and the unusual. It should startle or surprise the visitors.

"April and May, I don't care how dead it is, there's nobody here," he says. "Starting around the tenth of May, things will be starting to bloom, and then all the way into October and November there will be color here the entire time because their last

big hurrah is Halloween. So they have to go right through October 31 with color and things that are interesting."

Work on the project continued after the park opened in May, says Sparks. "That



'We tried to keep things looking unusual and different,' says Monaco. The creek running through this area was an opportunity to try water lillies and other plants.

was a little bit of a zoo because you're really distracted by the people, the behavior, the screaming and watching the people on

the ride," he says.

Monaco employs 10 full-time crew members, but at one point, he had 22 landscapers working three shifts around the clock to finish the job. It's a challenge that Monaco, who has worked on other areas of Geauga Lake, embraces.

"You have to be a certain type of person to work here because of the commotion," he says, emphatically waving his arms to convey the fast-paced atmosphere. "I'm the type of person that likes commotion, more or less. I thrive on the challenge."

Monaco lets his arms rest at his sides as he contentedly walks away from the Coyote Creek landscape.

"There are all sorts of people that come to parks," he says. "And a lot of them enjoy the landscaping and like to sit down, relax or even take pictures. The setting is always what people look at. It makes them want to come back." □



'The setting is always what people look at. It makes them want to come back.'

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GET THE BEST FOR LESS

Don't fear complaints

By NANCY STAIRS/
Technical Editor

Addressing customer demands takes a lot of time and effort. Regardless of whether problems are real or perceived, customer concerns and problems must be dealt with. But, complaints can be turned to a company's advantage too.

"Complaints will help you grow your business. If you look at complaints as gifts to your business, you will improve your business," said Dr. Richard Gerson, president of Gerson Goodson, Inc., a marketing management and training consulting firm in Clearwater, FL, at a free seminar at the Outdoor Power Equipment Expo in Louisville, KY, this past July.

In fact, Gerson recommended asking for customer feedback. "Get the complaints from the customers. It's the cheapest, the best source of information. If you don't want to call it 'complaints' call it 'feedback'. Say to them, 'what do I have to do to improve service to you?'"

"Even if it's just when you go out to do the job for that week, you ask them, 'how am I doing?'"

Effectively addressing complaints and problems is essential. "If you have employees, do they have the power to do what's right for the customer when it's also right for the company?" Gerson asks. "Or do they have to stop whatever they're doing to call you up and ask you for permission?"

"Think about how the customer feels when they have to wait for your employee

to call you and get an answer from you. Customers do not like to wait. When they want something, they want it now. Yesterday."

Gerson also emphasized that if you own the company, you are responsible for service and for the outcomes to clients. you cannot blame employees, "even if the employee has promised something; the customer doesn't care."

While Gerson does not believe that the customer is always right, he does say that customer satisfaction is whatever the customer says it is. Customer criteria usually include speed, accuracy, timeliness, friendliness and responsiveness.

"The needs, wants and expectations of the customer must be met and exceeded for customer satisfaction," he said.

"The key to your success is not getting new customers, it's keeping your old customers and doing more business with them. That is going to make you successful.

"Every satisfied customer you've got is worth four or five referrals to you, if you do

it right."

The value of retaining customers is something every small business owner should know, recommended Gerson. "How many of you know what it costs you to get a new customer? You need to start figuring that out, especially if you're a small business owner. It cuts into your profit margin, drastically.

"If you know the lifetime value of your customer and you can keep your customers because you provide great service, you can actually spend more to get them the first time."

The challenge, claims Gerson, is to re-

tain those satisfied customers, "...because a customer is satisfied, it doesn't mean that they're going to stay with you. It doesn't guarantee retention."

For this reason Gerson believes that customer satisfaction, a popular measurement, is not what a small business owner

Reasons for soliciting complaints

- ▶ complaints provide instant feedback for performance improvement
- ▶ complaints give you a chance to show customers what you really can do
- ▶ complaint resolution creates a deeper relationship with your customer
- ▶ customers whose complaints are resolved spend more with your business

needs to know for customer retention.

"Repurchase loyalty" may be a better measurement as it leads to the lowest costs and the highest profits.

"If you can keep just 5 percent more of your customers with you over time, your profits, not your revenue, can increase 25 to 75 percent," he said.

In order to move those customers from satisfaction to loyalty:

- ▶ give great customer service
- ▶ measure service outcomes
- ▶ measure customer satisfaction
- ▶ measure repurchase activity
- ▶ develop advocates and recommenders (people thrilled with you)
- ▶ reward loyalty and commitment (ask them what they want and give it to them)

Loyalty is what you want from your customers and addressing customer complaints is one step towards that goal. The thing about loyalty, Gerson states, "is that loyalty means zero defection, not zero defects." □



Gerson: be sure to keep the old customers.

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graveyard. But
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and well.”



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Nelson's Lawn Service
Ocala, Florida

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The key to succeeding when constructing a water feature is designing a good system and sticking with it. Building a pond is no different than

building a patio, retaining a wall or even planting a tree. There's a step-by-step process you need to follow to be successful. If you fail to level your base in your retaining wall, your entire wall will be unlevelled. The same principles apply when constructing a water feature. If you fail to follow a sequential step-by-step process, your foreman and crew end up working inefficiently and not as a team.

Ponds under 200 square feet can be built in one day (40-50 man hours) with a trained construction crew of four or five workers. It is very important that you follow the step-by-step sequence to avoid making more work for yourself.

The following assembly process has been used by Aquascape Designs, the country's largest water-garden builder, to successfully build over 500 ponds and waterfalls.



Left: once the pond site size is determined, remove the sod and dig out the pond.

Top: Contour and remove wrinkles from the underlayment and liner



7:30 A.M.: Mark out the pond design with a garden hose and then spray paint where the garden hose is laying.

After you make the determination on the pond site size, it's time to remove the sod and dig out the pond.

Place the skimmer and biological filter where they will be permanently stationed (tip: set filter about 6-10 feet from the pond's edge to create a stream).

Lay the plumbing (two-inch Flex PVC is recommended) from the back of the skimmer to the back of the filter on the outside of the pond. There is no need to bury the pipe, as it will be covered with the excavated dirt from the pond.

7:45 A.M.: Hook up the filter by leveling the ground and threading the bulk-head fitting and using the flexible PVC glue to connect the fitting (no glue is needed if you are using Poly Pipe).

While the foreman hooks up the filter, the crew can begin excavation starting at the center and moving out. All excavated soil goes on top of the plumbing and forms the base of the berm and waterfall.

During the excavation process, position the filter system and skimmer (following the detailed instructions given in the filter installation manual). This helps shape the pond edges. Furthermore, the filter must

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- ▼ **His COMPETITIVE ADVANTAGE:** "outperforming larger crew-driven companies who have lost the personal touch and attention to detail."

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Left: wash off the rocks by using a garden hose while washing the dirt into the sump pump at the bottom of the pond.
Bottom: Two or three tons of cobblestones are used around the berm for support. (Photos courtesy Aquascape Designs)



be positioned early so the excavated dirt can be used to bury and stabilize the filter.

After positioning the filter on stable, leveled ground, the filter should be set into a final position so it tilts slightly forward. This encourages the water to exit over the waterfall stone, and reduces the possibility of leakage from plants, interfering with the flow of water over the waterfalls.

10:45 A.M.: Lay the underlayment and liner contouring it to the pond edges by walking on it, and pull out any wrinkles.

11:00 A.M.: Rock in the pond by forming a chain gang. Use 6 to 12 inch cobblestones to build retaining walls up the vertical edges of the pond, and gravel to cover up horizontal areas.

11:30 A.M.: Position underwater lights facing away from the viewing area. Lock them in place between cobblestones.

11:45 A.M.: Wash off the rocks by using a garden hose while washing the dirt into the sump pump at the bottom of the pond.

12:00 P.M.: Begin filling the pond and break for lunch! Notice everyone is working as a team to accomplish the common goal of having the pond excavated, lined, rocked and filled by lunch time.

12:30 P.M.: Back to work! The foreman begins building the waterfall and stream

while the crew brings back topsoil to cover the excavated dirt.

2:00 P.M.: The foreman continues building the waterfall and stream while the crew begins to build the retaining wall. Typically two to three tons of 12 to 18 inch cobblestones are used around the berm, for support.

3:00 P.M.: Carefully cut away excess liner around the waterfall and pond.

3:45 P.M.: Spread mulch over the new berm.

4:00 P.M.: Clean up and load the truck.

4:30 P.M.: Review the owners manual with the customer, give them the bacteria and receive your payment for a completed project.

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The benefits of certification can include: recognition of expertise for professionals in the landscape contracting industry; increased personal commitment to the profession; enhanced self-esteem and professional credibility; increased marketing advantages for individuals and firms; and increased respect and recognition of the landscape industry.

The following individuals recently passed the Certified Landscape Professional-Exterior exam: Richard Hase, Hase Landscape, Inc., Waukesha, WI; Heather Shuster, Terra-Firma Landscape, Inc., Muskego, WI; Mike Sutherland, Haversham Gardens, Atlanta, GA; and Robert Solomon, Redwood Landscaping, Santa Rosa, CA. □

Educating future Green Industry leaders

The National Future Farmers of America (FFA) Organization, the National Council for Agricultural Education, the Professional Lawn Care association of America (PLCAA), the Golf Course Superintendents Association of America (GSCAA), the National FFA Foundation, horticultural teachers (secondary and post-secondary), and industry leaders from across the Green Industry met in July to discuss opportunities for an organized curriculum project in agricultural education. The project would focus on career development opportunities in areas of turf, mowing and edging; landscaping; tree and shrub maintenance; lawn care; odd-season activities; and other areas related to the industry.

The outcome of the meeting provided the framework for development of a proposal for educational materials by the National Council for Agricultural Education. The proposal will be developed and funding requests will be made to assist in development of the materials and provide train-

ing for teacher implementation. These materials will be made available to the 12,000 agriculture teachers across the country. They will include activities and resources to assist teachers in exposing students to the broad career opportunities in the Green Industry, and will provide the necessary skills and information for pursuing those careers.

A steering committee to assist in the development of the proposal consists of Tom Delaney (PLCAA), Barry Trautman (Environmental Care Industries), Dick Jones (The Davey Tree Expert Company, ISA, NAA), Enid-Mai Frost (GSCAA) and Rosco Vaughn (National Council for Agricultural Education).

Midwest Regional Turf Field Day

The Midwest Regional Turf Field Day was held in West Lafayette, IN the end of July. The event, held at the 22 acre Wm. H. Daniel Turfgrass Research and Diagnostic Center, was attended by over 750 turf professionals. Attendees were able to view the latest in turfgrass research and to evaluate many types of turf equipment and products from over 40 exhibiting companies. In addition, attendees were able to interact with a number of Purdue specialists from many disciplines of the green industry. The field day for 1999 is planned for 27 July. □

CLCA presents awards for projects

The 40th Annual Beautification Awards were held by the California Landscape Contractors Association (CLCA), where a panel of judges assessed over 80 sites in Orange County and Long Beach, for the very best in landscaping design, maintenance and lighting.

The highest honor, the 'Meridian Award', for lifetime contribution to beautification of the environment was presented to C. Wade Roberts of Sherman Gardens.

The 'Sweepstakes Award', for best overall entry, was awarded to Richard Taylor & Associates, Costa Mesa.

Chamley Landscape, Inc., Laguna Niguel received the 'Bill Vandergeest Excelsior Award' for the best entry by a new CLCA member.

The 'President's Award', for the best entry in any landscape installation, was given to Visionscape, Laguna Beach.

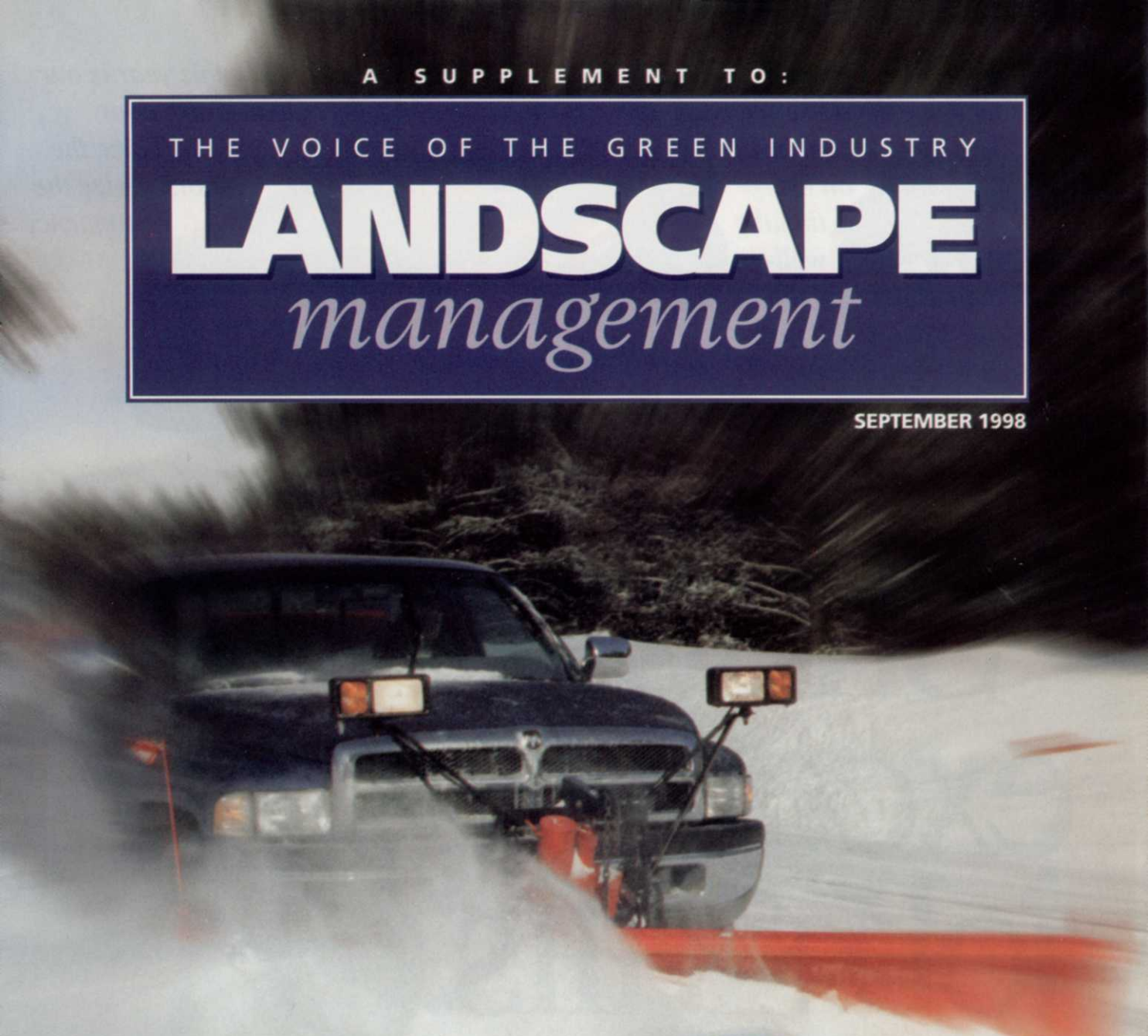
The 'Judge's Award' for maintenance was awarded to Earthscaping, Laguna Beach. □

A SUPPLEMENT TO:

THE VOICE OF THE GREEN INDUSTRY

LANDSCAPE *management*

SEPTEMBER 1998



GUIDE TO PROFITABLE **Snow & Ice** REMOVAL

- *Equipment checklist*
- *Tips for better technique*
- *Subcontractor guidelines*
- *Truck/plow combinations*
- *Using de-icers correctly*
- *Zero-radius versatility*



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¹Club and Quad Cabs, and 5.2L V-8 not available on chassis cab models. ²J.D. Power and Associates 1995-1997 Automotive Performance, Execution, and Layout StudiesSM 1997 study based on 29,187 consumer responses. ³Based on percentage of 7/88-7/97 new pickup registrations still registered on 7/1/97. Data Source: The Polk Company. ⁴N/A on Ram Quad Cab 1500. Service contract option not available in AL, FL, MS, OK or UT. No refund if canceled. Some vehicles ineligible. There is a \$100 deductible for each covered repair visit. Tire coverage covers only complete or pro-rated replacement for original four tires, excluding spare. See plan copy and full details at dealer.



How to use liquid anti-icers

Know anything about eutectic temperature? Read on to be a smarter product buyer and snow removal specialist.

By DALE KEEP

All ice control products work the same. Their function is to lower the freeze point temperature of water. This ability is dependent upon the percentage of chemical in solution that is expressed as the "eutectic temperature" of the solution.

The eutectic temperature is the freeze point temperature of a solution based on the percentage of material in solution, not volume.

While this may seem complex, the freeze chart on an anti-freeze container is an example.

For example, let's say you have a 12-quart capacity radiator system. You fill it with six quarts of anti-freeze and the remainder with water. This is a 50 percent solution that provides protection down to -34° F. However, if you fill the system with three quarts of anti-freeze and the remainder water, the volume of material is the same, but the 25 percent concentration protects only down to +10° F.

The same holds true for all ice control products. These products melt snow, which creates water and dilutes the concentration. As the concentration changes, so does melting temperature of the material. I call this concept DOS, or "Dilution of Solution."

Some products actually become more effective (melts at a lower temperature)

as they dilute to the optimum eutectic temperature.

Dilution of solution

Understanding DOS provides the key for understanding how ice control products work. Specifically, an ice control product will work until the eutectic temperature of the solution meets the pavement surface temperature. At this point, the material will stop melting and you may experience refreeze. Refreeze occurs when an ice-control product dilutes to the point that it can no longer melt ice at the given surface temperature.

DOS also provides the foundation for determining how long a product application will last.

Let's say, for example, that your own experience indicates that it will take 0.2 inches (0.5 cm) of water to dilute your application to the point of refreezing. Let's also say that each inch (2.5 cm) of snow contains 0.1 inches (0.25 cm) of water. How long will the application last before it refreezes?

The answer: As long as it takes to accumulate 2-inches (5 cm) of snow. Two inches of snow provides 0.2 inches of water to dilute the application to the point of refreeze. If it takes 12 hours to accumulate two inches of snow, then the application lasted 12 hours. If it takes one hour to accumulate two inches of snow, then the application lasted one hour.

DOS also explains why one application rate will not fit all storm events. The temperature and moisture of each storm event varies, therefore, the application amount needed to control each storm varies.

Remember: the effectiveness of any deicing chemical is dependent on four factors:

- 1) Surface temperature
- 2) Application rate
- 3) Moisture
- 4) Beginning concentration

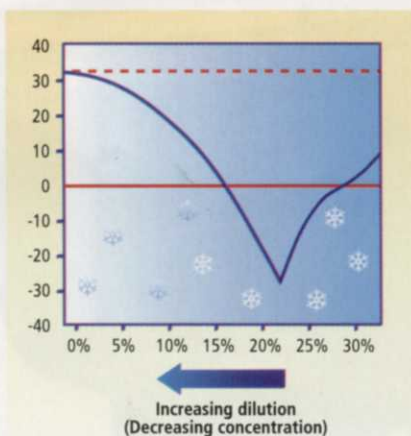


Figure 1: A sample freeze point curve



Equipment issues for chemical roadway clearing

First, list your equipment usage requirements, then select the equipment to fit that need.

Remember: equipment selection is based on user requirements

1. Product to be used.

Consider corrosiveness: Set up for corrosive material.

Recirculation: Set up to allow for recirculation mixing.

Tank material: plastic vs. stainless steel.

Deicer weight: Set up tanks to allow for at least 12 lbs./gal (142 kg/lit.)

2. Pumps

Material: what are they made of, especially the impellers?

Tolerance: how much tolerance is there between the case and the impellers of the pump?

VPM maximum: what is maximum volume per minute output?

VPM minimum: what is minimum volume per minute output?

3. Application rate

Maximum volume per area desired per application

Minimum volume per area desired per application

4. Application pattern

Anti-icing: spray pattern

Deicing: concentrated stream

Lanes to shoot: number of lanes to cover per application

5. Speed

How fast do you want to travel while applying?

How slow can you safely travel while applying?

6. Controls

Speed vs. volume per area of application

Ground speed controls

Easy to use

7. Tank capacity

Area: how much area must you cover per tank full?

What is the minimum acceptable application rate per mass with the machine?

8. Is retro-fitting an option?

Pesticide trucks

Flusher trucks

Oil distributors

Water tanks

Dale Keep

Quality control

A good quality control program is essential to any reliable anti-deice program. The potential for inconsistencies in delivered products will result in inconsistent performance. Without a good quality control program, performance results can differ even though applications and circumstances are the same.

Knowing the specific gravity of a liquid chemical deicer and the associated information, as presented on the previous chart, is the heart of a good quality control program.

Specific gravity is defined as the mass of a substance, given as a multiple of the mass of the same volume of a standard substance (usually distilled water) under prescribed conditions of temperature and pressure.

The specific gravity of aluminum is 2.70; therefore, a cubic foot of aluminum weighs 2.70 times as much as a cubic foot of water.

For measuring the specific gravity of liquids, a hydrometer is commonly used. For more accurate measurements, the

weight of a known volume of liquid is determined under controlled temperature conditions. Hydrometers must be calibrated according to the type of liquid to be tested, and at a standard temperature, usually 4° C (39.2° F) or 20° C (68° F).

Various types of hydrometers measure density or purity in storage batteries, ship boilers, soil and milk.

Know what you're getting

The deicer contract clearly states that the magnesium chloride-based product must be delivered at 28 percent. A variance of plus or minus one percent is acceptable. Water weighs 8.34 lbs. per gallon. The product that exactly meets specifications has a specific gravity of 1.262. Multiply the weight of water times the specific gravity to determine the weight of the liquid deicer. The weight of a gallon of product is outlined:

$$27\% = 1.251 \text{ specific gravity} \times 8.34 \text{ lbs./gal.} = 10.43 \text{ lbs./gal.}$$

$$28\% = 1.262 \text{ specific gravity} \times 8.34 \text{ lbs./gal.} = 10.53 \text{ lbs./gal.}$$

$$29\% = 1.273 \text{ specific gravity} \times 8.34 \text{ lbs./gal.} = 10.62 \text{ lbs./gal.}$$

Effective temperature is the lowest temperature in which the cost of the application is justified by the results obtained. Effective temperature is based on an economic decision.



EXAMPLE FREEZING POINT OF MAGNESIUM CHLORIDE BRINE

% by weight	Specific gravity*	Freezing point Celsius	Freezing point Fahrenheit
5	1.013	-2.11	26.4
6	1.051	-3.09	25.0
7	1.060	-4.72	23.5
8	1.069	-5.67	21.8
9	1.070	-6.67	20.0
10	1.086	-7.83	17.9
11	1.096	-9.05	15.7
12	1.105	-10.5	13.1
13	1.114	-12.1	10.3
14	1.123	-13.7	7.3
15	1.132	-15.9	4.0
16	1.142	-17.6	0.4
17	1.151	-19.7	-3.5
18	1.161	-22.1	-7.7
19	1.170	-25.6	-12.2
20	1.180	-27.4	-17.2
21	1.190	-30.5	-23.0
22	1.200	-32.8	-27.0
23	1.210	-28.9	-20.0
24	1.220	-25.6	-14.0
25	1.230	-23.3	-10.0
26	1.241	-21.1	-6.0
27	1.251	-19.4	-3.0
28	1.262	-18.3	-1.0
29	1.273	-17.2	1.0
30	1.283	-16.7	3.0

*Specific gravity at 15.6 degrees C or 60.0 degrees F.

Therefore, any product delivered with a specific gravity reading between 1.251 and 1.273 and corresponding weights between 10.43 and 10.62 lbs. would be within the terms of the contract.

To tie this all together, when a load comes in, get a sample and check the specific gravity of it with a hydrometer. Reference the hydrometer reading to the correlating information on the chart.

When possible, get certified weight slips on delivered loads. With the weight slip and knowledge of the quantity delivered, you can quickly determine the quality of the product delivered.

Assume you have ordered 5000 gallons of product as described here, and the weight of the load as verified by a certified weight slip is 51,000 pounds. Quick math tells us that the product delivered weighs 10.20 lbs. per gallon. (51,000 lbs. ÷ 5000 gal. = 10.20) and does not meet specifications.

More quick math (10.20 ÷ 8.34) tells us that the specific gravity of this product is 1.223. Checking the chart, we find that this product is only 24 percent and clearly does not meet specifications.

Dry equivalents

Remember that with liquid deicers, water is only a carrier, and that water does not melt ice. So the question is, How much chemical is actually put out during an application?

Determining the dry equivalent will provide this answer.

To determine dry chemical equivalents, again specific gravity and the weight of water comes into play. In the previous example, the 28 percent product weighed 10.53 pounds per gallon. □

The author is maintenance methods specialist for the Washington State Department of Transportation.

Dale Keep

Use plows in concert with anti-icers

- ▶ Extra snow and loose ice on the road surface can cause excessive dilution of product applications.
- ▶ Product dilution will decrease its effectiveness.
- ▶ Plow to remove snow and loose ice before anti-icing applications.
- ▶ If snow accumulates before or after applications, plowing directly before your next application will minimize product dilution.
- ▶ Anti-icing trucks should be equipped with front-end plows.



Snow removal DOs and DON'Ts

Here's a list of all the things you need to have covered with your crews or subcontractors prior to the start of snow season.

DO:

1. Tell your subcontractors to call you, the contractor, before snowplowing, to get a go-ahead and receive any special instructions. Make the foreman the contact.
2. Subcontractors must provide current, working phone numbers.
3. All work order instructions must be read completely. They contain special notes.
4. Push snow piles back as far as possible by plowing up the curb and then raising your plow and pushing the pile over the curb.
5. Run plow along the curb so the lot is clean from "curb to curb." Watch for protruding curbs and be careful.
6. Square off corners unless they are naturally rounded.
7. If you break down, let the company know *immediately* so the route can be completed.
8. Inspect the job site after plowing.
9. Call in to the office after work is completed. Use the following chain of command:
 - a. Check with your supervisor/foreman to let him know your route is done, and to see if he needs help on other jobs.
 - b. Contact dispatch or have your supervisor contact dispatch to let them know work is done.
10. If you get additional or special instructions from a customer, get a name and phone number, and an okay from the company. Extra work should be done *after* the regular route is cleared.
11. If you should do any damage while plowing, include it on your time card and report it to the company.
12. Stay on your route until all assigned jobs are completed. If you are sent off your regular route, make sure the company knows your assigned route is not done after each extra job you do.
13. Carry a snow shovel in the event that some hand labor need to be done.
14. When working near gas meters, stay at least three feet away.

Plowing don'ts

DON'T:

1. Pile snow in front of or on: doorways; fire hydrants; sidewalks; steps; garage entrances; garbage dumpsters; shrubbery, especially evergreens; buildings loading docks; cars
2. Push snow across streets or onto medians.
3. Leave trails or snow clumps.
4. Leave areas undone unless instructed by the contractor company or the customer and ok'd by contractor.
5. Use tire chains.
6. Pile snow in the middle of a parking lot. All snow must go to the edges of the parking lot unless you are otherwise instructed.
7. Load snow over or push up against fences (especially state fences).
8. Use skid pads on plows.

Hand labor DOs and DON'Ts

DO:

1. Wait for snow to stop before doing hand labor, unless snow depth exceeds six inches.
2. Blow the snow away from the driveway as much as possible, unless the lot has not been plowed.
3. If you must blow the snow onto the plowed lot, run the curblines with the blower to insure there's no build up along the curb.

DON'T:

1. Exceed two workers per crew.
2. Blow snow onto evergreens or against windows.
3. Disconnect two-way radio or mobile phone before jumping or charging the truck battery (the power surge will burn them out).

Definitions:

Clean-ups: A partial job was done for one reason or another. You are to plow the job 100 percent complete, or as much as able, depending on number of cars in the lot.

Drift patrol: Push back all drifts that are closing in the lot. This includes, but is not limited to, all drives, entrances, parking areas, and loading docks.

Open-up: Usually the only time an open-up is done is when there is a continuous snowfall, a snowfall that starts during the day or a parking lot is opened up so cars can get out, such as at an apartment building. Open-ups are done for snow depths greater than four inches unless specifically instructed by the contracting company. Do not be concerned about plowing any stalls. The entrances are to be plowed curb to curb. For aiseways, only one pass is made each way because you do not want too much snow wind-rows behind the cars. The most common types of jobs that need open-ups are apartments and restaurants.

Two-inch start: Do not start plowing until there are two inches of snow on the ground, unless the work order states otherwise. At least a dozen measurements have to be made to get an accurate reading.

If there is a lot of drifting, as many as 24 readings have to be made.

Recommendations:

1. Take the tailgate off for better visibility.
2. Carry a watch that works.
3. Extra equipment to carry: ice scraper; extra pin for plow carriage; long handled, #2 dirt shovel; spare plow hoses, and hydraulic fluid; tow chain, fire extinguisher; jumper cables; flashlight; extra bolt and nut for chain lift on plow; spare hydraulic cylinder
4. Have two, 12-volt batteries if you have an electric over-hydraulic system.
5. Any lights not factory installed should be fused.
6. If you get stuck more than once, put snow in the back of the truck for weight.
7. When the snow exceeds five inches, thin it out before wind rowing.
8. Carry some quarters for emergency phone calls.
9. For personal safety, carry extra clothes, hat, gloves, heavy boots, sunglasses...and common sense.

Source: Clean Cut/Snow and Ice Managers Association.

Snow removal services help contractor stay productive year round.

"Being able to clear snow is a real added value I offer my clients. I have a snowthrower, dozer blade and rotary broom, and my system lets me change attachments fast, without tools. I'm a real believer in zero-radius maneuverability. It lets me get into spots other guys just can't reach with bigger or less maneuverable equipment. And it is a lot faster than the smaller hand-pushed snow blowers."

— Mark Moyer, Kirksville, MO



PTO-driven snowthrower delivers no-clog performance, moves snow 20 to 30 feet away.

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V-snow plow clears walkways.

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"More than 25 inches of snow fell. Even though 1-2 inches fell each hour, we were able to keep the driveways in our area clear with our Grasshopper. The cab enclosure allowed us to stay warm for long periods of time – even with a minus 20° F wind chill index."

— Charles McIntire, Elkton, MD



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Your Grasshopper turns into a high-efficiency zero-radius mower that lets you trim while you mow. Built for comfort, productivity and endurance, your Grasshopper will give you dependable service all year long, season after season.

Switch attachments in minutes without tools.

Grasshopper's Quik-D-Tatch® mounting system* easily connects a deck or attachment to the power unit and eliminates the alignment hassles often associated with switching attachments and deck sizes.

Other productivity tools include:

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- ROPS • Sunshade Canopy

Let it pick up leaves, mulch and aerate. Grasshopper lets you handle more jobs with the same machine.



GRASSHOPPER is number one in productivity. The exclusive Combo Mulching™ Deck* with full-flotation option, lets you mulch, discharge or bag with the same deck for superior results in varying conditions.

*patent pending



Plow, truck match critical for safety & success

The move to make trucks ride more like cars puts a spin on the usual truck/plow compatibility equation. Don't just take for granted what a salesman tells you. Know the facts about truck/plow compatibility.

By JOHN ALLIN

When it comes to putting plows on trucks, you can get a lot of different opinions from a lot of different people. It can be confusing. I have spent time on the phone with the manufacturers and in dealers showrooms talking with tech support people, sales people, and owners of dealerships.

I have found that one dealer can tell you that there is no problem with putting a plow on the truck they sell, and another

tell you there is no way you should put a plow on that truck. Below is a compilation of what I have been able to find out that I feel to be "reliable" information.

Much of the confusion surrounding this issue can be traced to the addition of the driver's side air bag in trucks, but it can also have a lot to do with the demands of those who purchase trucks. It is a federal law that all trucks under 8600 lbs. gross vehicle weight (GVW) must meet the same safety standards as cars.

This makes automotive engineers very conservative. Also, more than 90 percent of pickups and sport/utilities sold today are sold to car buyers who want a "new car ride" in their trucks as well as the op-

The manufacturers are saying that if you want a plow, buy yourself a three-quarter ton truck or larger.

tions that are available in cars.

Because of this, the stripped down "work truck" has become a thing of the past. Trucks are being designed with a softer ride and are now made closer to the ground so people can get into them easier. Much of this has to do with half-ton trucks and sport utilities, so truck manufacturers now consider sport utilities, half-ton trucks and smaller to be personal use vehicles, not commercial truck vehicles.

Listed below is some feedback I have acquired from the manufacturers about their recommendations regarding mounting plows on their trucks.

Chevrolet/GMC: Has approved only 10 models (only two of which are half-ton trucks) for snow work, and all of them must have the VYO snowplow prep package. They want no plows on any sport utility vehicles, no plows on extended cab trucks, crew cab trucks and Suburbans.

Ford: When the new F-150LD first came out, they said no plow, but now they seem to have backed off somewhat. It must have a 3900 lb. front axle, the plow cannot exceed 500 lbs. and the truck must have the Heavy Duty Service Package.

On the F-250LD, they only approve a



APPROXIMATE WEIGHTS FOR STANDARD SIZE PLOWS:

6-1/2' light duty plows	450 lbs.
6-1/2' standard duty plows	650 lbs.
7-1/2' standard duty plows	665 lbs. Boss
7-1/2' super duty plows	715 lbs. Boss
7-1/2' poly plows	625 lbs. Western
7-1/2' power "V" plows	795 lbs. Boss
8' standard duty plows	775 lbs. Western
8' super duty plows	765 lbs. Boss
8' poly plows	825 lbs. Western
8'2" power "V" plows	910 lbs. Boss
8-1/2' standard duty plows	790 lbs. Boss
9' standard duty plows	825 lbs. Western
9' super duty plows	813 lbs. Boss
9'2" power "V" plows	960 lbs. Boss

plow for a 3950 lb. front axle. They do not approve of plows on any sport utility vehicle.

Dodge: Only trucks with gas engines are approved for plow mounting. And these must have AHD plow packages. No half-ton trucks or Dakotas are approved.

Toyota: They say no plows are approved on any trucks.

As you can easily see, the manufacturers are saying that if you want a plow, get a three-quarter ton truck or larger.

The manufacturers' reasoning on smaller trucks is this (and it is technical): if a pickup is designed to carry three passengers, then three, 150-lb. people must be figured into the equation to see if the front axle is overloaded. And over-load-

ing is a problem not to be taken lightly, because it can effect wear and federal safety standards in braking.

If you have a four-passenger sport utility vehicle (or extended cab) or even a six-passenger Suburban (or crew cab) the problem is worse. But what if you plow alone? Or possibly with only your dog for company? This is not considered. It is a technicality. But there is another point that they have not added to the equation. That is "rear ballast." The more weight within limits that is added to the rear axle subtracts weight added to the front axle by adding a plow.

Finally, there is one more thing that has not been addressed at all by the manufacturers. This is the fact that Western has come up with an innovative addition to their plow frames. Western has added a wheel to ride under the plow frame that allows the plow to support its own weight.

The question arises: What can happen if you put a plow on an unapproved truck. Answer: the front end and front suspension will not be under warranty. The brakes may also wear prematurely. There may be some safety concerns here too. There are dealers that will install plows on almost any vehicle out there in the marketplace.

Keep in mind that my personal opinion is that you should use a three-quarter ton (or larger) truck for all snow plowing operations. □

—The author is president of The Allin Companies, Erie, PA, and a founding member of the Snow and Ice Management Association, also based in Erie. For information on joining SIMA, contact them at 814/456-9550 or on the web at www.sima.org

Top left: Chevy extended cab truck is not to be used for snow plowing. Ford truck, at right, must have a 3900 lb. front axle.





Zero-radius mowers add year-round versatility

Not only do Grasshoppers take care of mowing jobs, they are also put to work to remove mountains of snow.

High in the Rockies, getting the most out of your maintenance equipment isn't simply preferable, it is a necessity, according to Vance S. Garfield, Parks Department Superintendent for Kaysville City, Utah.

The department's Grasshopper zero-radius mowers with several attachments offer the versatility any city needs in its equipment mix to reduce costs.

"Not only is every season's weather more extreme in the upper altitudes, but, just like other municipalities, our budgets aren't getting any bigger," says Garfield. "That's why we have to make the best of what we have. Needless to say, we can't afford to buy separate equipment for each season."

The department also has two Jacobsen Turf Cats with 72-inch flail decks and snowplows for two larger department

trucks. Garfield's crew uses the big equipment for cutting the wide open spaces where maneuverability is not as crucial. And the truck plows are necessary to clear city-owned parking lots and cemetery roadways during the winter.

"A lot of our cutting requires tight turns, reaching into tight spaces and cutting close to playground equipment, shrubbery, flower beds, trees and fences," says Garfield. "We just couldn't do it all in the time we have without zero-radius mowers."

The Kaysville Parks Department operates three Model 725 Grasshoppers and one Model 721 for grass mowing, leaf mulching and snow removal.

Getting around in tight places

"These machines—equipped as mowers, plows, brooms or snowthrowers—have ample power to handle a variety of



Snow removal attachments tips



Grasshopper's PTO-driven snowthrower attachment (shown on page SR12) is available in 48- and 60-inch models. It offers 'no-clog' performance, even in deep, heavy, wet snow. Above are some of the other Grasshopper attachments.

- ▶ Snow removal on sidewalks and other narrow walkways can be done quickly and efficiently with attachments like a V-Snowplow. V-Snowplows spread the load in two directions, decreasing stress on the machine and distributing snow drifts evenly to either side.
- ▶ A dozer blade affords the opportunity to surgically remove snow around items such as parked cars. Not only does this provide for maneuverability around delicate obstacles that must be untouched, but it keeps snow on the ground, a feature especially valuable in the removal of powder snow in high winds.
- ▶ A rotary broom can be ideal in dry snow up to 8" deep. Use a broom that can adjust to a 25° angle left or right for best results.
- ▶ For deep, heavy snow, a snowthrower attachment is highly recommended for most efficient and complete removal. With an adjustable discharge chute, and PTO-driven unit to avoid belt slippage and utilize more power from the engine to the auger, a snowthrower is indispensable.
- ▶ In exceptionally deep snow conditions (over 8'), one pass with a snowthrower on a high-level setting and a second pass at full depth will ensure maximum unit efficiency and cleaner results.
- ▶ A machine that allows you to change attachments with ease will obviously reduce downtime and expenses, and increase productivity.
- ▶ Cab enclosures in harsh weather allow drivers to work all day with fewer breaks.

Courtesy, The Grasshopper Company

situations from large snow drifts to relatively tall grass growth," says Garfield.

In addition to helping the park crews keep up with the feverish pace of grass growth in the spring and throughout the summer, maneuverability during the winter is also very important. Garfield says that zero-radius turning capabilities are just as essential to snow removal during the winter as plows are for the city's trucks.

"We have a lot of areas we take care of that simply can't be reached with the big equipment," he says. "The entire two-block center of the city surrounding our city offices are honeycombed with walkways and sidewalks. Our two Grasshopper mowers—a 21-hp unit and a 25-hp unit—can be equipped with snowthrower attachments. They're ideal for that kind of job. I can't imagine how long it would take with conventional hand-pushed snow removal equipment, but the zero-radius units are fast, and allow us to clear any amount of snow."

If the snow is 8 to 10 inches or more, Garfield adds, they set the snowthrowers high and make a couple of passes.

"There is no depth these machines can't handle if you either go slow the first pass or just set it high for the first pass and then repeat at a lower setting," he says.

Garfield says his crew is also responsible for keeping the city-owned cemetery clear of snow which is especially important since snow can be found on the ground well through Memorial Day.

"The snow tends to stay for long periods here in Kaysville City," says Garfield. "If there's a scheduled funeral, it has to be cleared in that one spot. If the snow can't be simply blown off with a blower,

we can use the snowthrowers because they don't scalp the grass under the snow like other units we have used. And their zero-radius ability makes removing snow around traditional monuments quick and efficient." □



Snow removal starts in summer

Ron Brubaker says that if you're in the snow removal business, you have to prepare for it. That's why he starts in mid summer to gather all that he will need to keep his clients happy for the approaching winter season. This includes lining up customers and drivers, and making sure that he'll have enough product, including ice melters, once the first snow or freezing rain fall.

"Typically I try to have my contracts

out right around the first of September," says Brubaker of Brubaker Maintenance, Columbus, Ohio.

Brubaker, who has been in the commercial snow removal business since 1962, secures the contracts from industrial and commercial clients, then sub-contracts the actual plowing to a network of other drivers. Most operate small seasonal businesses and appreciate the extra income. He can have 22 trucks on the road at one time.

While rock salt is Brubaker's product of choice for parking lots and other large areas, he stocks more specialized

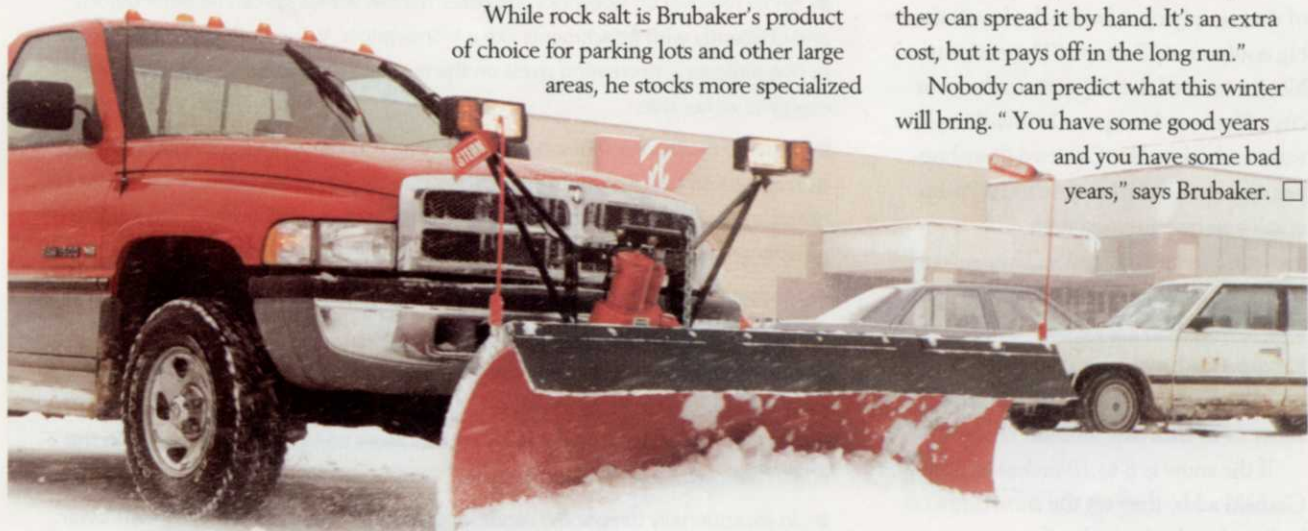
deicers for walkways or areas with decorative concrete.

"We have a lot of moisture and humidity in our area, and sometimes we get a black ice on sidewalks," he explains. Since his customers include banks and medical buildings, he has to have products that work without causing any additional problems.

For long sidewalks these deicers can be applied with a push spreader. Hand spreading from a 5-gallon bucket works fine in smaller areas.

"As a courtesy to some of the my customers, like banks, I'll put a bag of deicer in their foyers," explains Brubaker. "If I can't get there in time—like when it starts icing up and we're on the other side of town and can't get there right away—they can spread it by hand. It's an extra cost, but it pays off in the long run."

Nobody can predict what this winter will bring. "You have some good years and you have some bad years," says Brubaker. □



Snow equipment check list

EQUIPMENT

1. Check and change parts or fluids as needed:

- antifreeze
- radiator hoses
- air filter
- battery cables and water lines
- power steering fluid
- engine belts
- engine oil & filter
- brake fluid (if color has changed, replace)
- wiper blades
- top off washer fluid
- engine tune up
 - for gas engines: plugs & wires
 - for diesel engines: glow plugs.
- hydraulic oil, if applicable
- gear lube front and rear axles

2. Change, regardless of when changed last:

- fuel filter
- automatic transmission fluid and filter
- transfer case oil
- hydraulic filter if applicable

3. Front axle check

- inner spindle bearing
- U-joints (front axles, drive shaft, steering)
- wheel bearings, check and grease
- brakes and seals, adjust if necessary
- manual lockout hubs, clean and lube

4. Rear axle check

- U-joints, drive shaft
- brakes and seals, adjust if necessary

PLOWS

1. Check fluid in pump and rams, check filter
2. Mount plow and check for movement
3. Check hoses and seals for nicks or leaks
4. Check plows for cracks
5. Check cutting blade for amount of wear left and make sure bolts are tight
6. Check carriage bolts to make sure they are tight

SPREADERS

1. Mount on truck
2. Check drive chain or gears. Lube them. Chain should be lubed in spring when put away.
3. Check hoses for nicks and leaks.
4. Check and adjust pattern.



These plows built for heavy duty use

The all new Fisher 9' and 10' Municipal/Commercial plows were designed for today's new 'Super Duty'



style trucks. Now available with the Fisher trip-edge design, these plows can be used for parking lots, narrow streets and intersections.

Applications include the Ford F450SD, F550SD, F700 and F800; GM Kodiak/Topkick, both regular and low pro, and ICH 4700, 4800 and 4900. For more information, contact: FISHER ENGINEERING
12 Water Street
Rockland, ME 04841
www.fisherplows.com
Circle No. 278

Tailgate spreaders handle various size jobs

The Western line of Pro-Flo tailgate spreaders offers the ice control professional a choice of two spreaders ideal for parking lots of any size. The Pro-Flo spreads dry #1 rock salt, calcium chloride and other ice melting material. The Pro-Flo2 tailgate spreader has a 2-stage delivery system with 16" belt conveyor to assure positive feed of all



materials including wet sand. For more information, contact: Western Products
7777 N. 73rd Street
Milwaukee, WI 53223
www.westernplows.com
Circle No. 279

Adjustable V-Plow can do it all



The 8.5' MVP plow, from Western Products, adapts to any plowing situation because it's hinged in the center to allow plowing in the scoop, 'V' or straight blade position. Each wing has a trip-edge; when the blade strikes an obstacle only the lower edge trips back. This plow has exclusive, handheld CabCommand control. The FloStat Hydraulic System, allows you to hydraulically lock the blade wings to act as one, along with double acting cylinders for efficient back-dragging. For more information, contact: Western Products
7777 N. 73rd Street
Milwaukee, WI 53223
www.westernplows.com
Circle No. 280

Snowthrower offers 'no-clog' performance



A snowthrower attachment for Grasshopper's full line of zero-radius mowers delivers "no-clog" performance, even in deep or heavy wet snows. A discharge spout rotates a full 180 degrees to deliver snow 20 to 30 feet away.

Available in 48-inch and 60-inch models, Grasshopper snowthrowers feature heavy-gauge welded steel construction, a high-speed 12-inch diameter auger with heavy-duty 3/16-inch flighting and a built-in heavy-duty scraper blade.

Grasshopper's exclusive Quik-D-Tatch" mounting system lets you change deck sizes or add attachments in minutes without tools.
Circle No. 281

Rotary brooms for all seasons

Grasshopper's PTO-driven rotary brooms handle dirt, debris and clear up to eight inches of snow, leaving a clean, dry path. Rotary brooms are ideal for



clearing sidewalks, parking lots and other public areas. Units can also be used to remove gravel from grassy areas near driveways and roads.

The 60-inch bidirectional model is effective for dethatching at half-throttle speed, while full-throttle speed works best for snow removal.

The 48-inch and 60-inch fixed-angle models operate at a 25 degree

right angle, while the 60-inch bidirectional model can be raised up to two inches and angled up to 25 degrees.
Circle No. 282

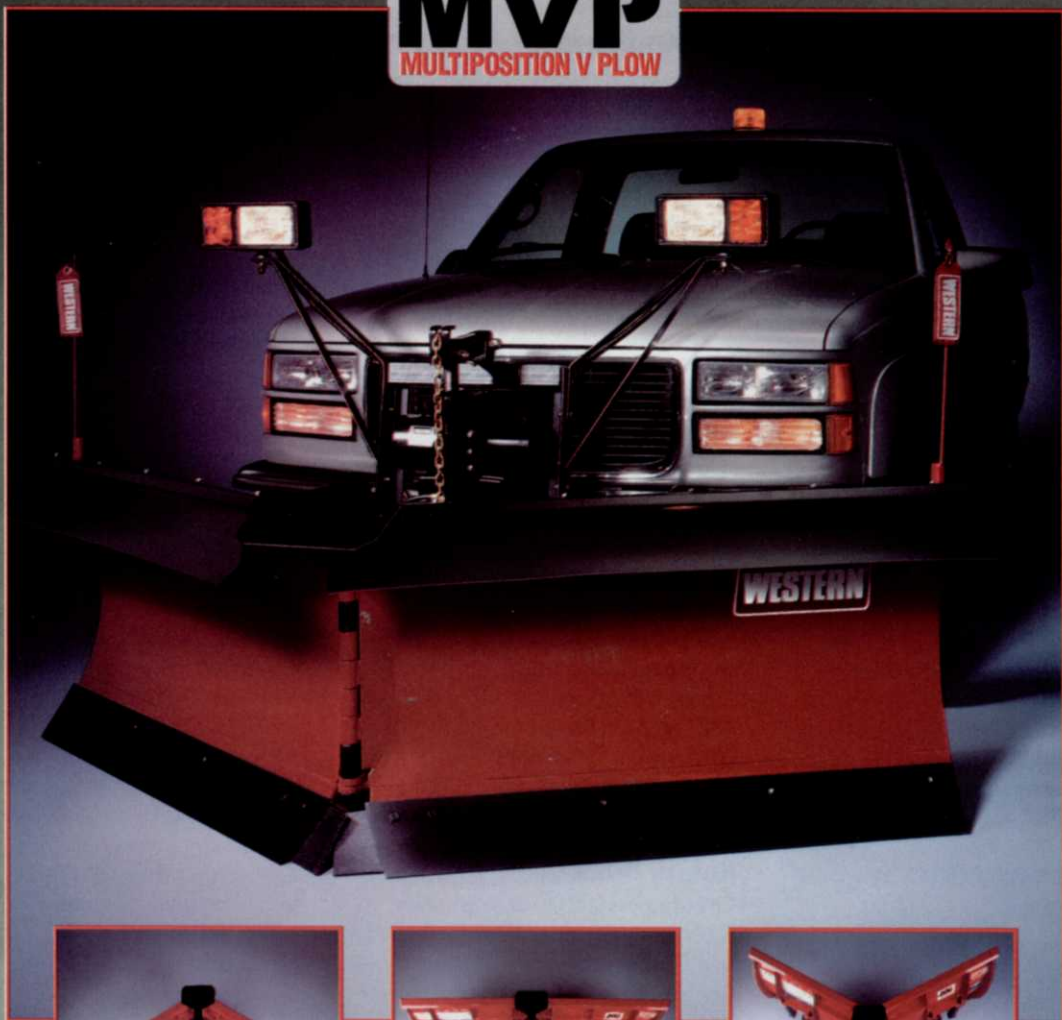
Multipurpose dozer blades

Grasshopper's multipurpose dozer blades move dirt, sand, gravel and snow, and are particularly effective in dislodging stubborn ice from sidewalks and drives.

Available in both 48-inch and 60-inch widths, Grasshopper's dozer blades are adjustable to allow operation straight ahead or 25 degrees left or right. An easy-to-use control lever permits pre-set height adjustment, while a quick response foot control allows intermittent height adjustment. A V-snow plow is also available for sidewalks and other open areas.
Circle No. 283

For more information on these products, contact:
The Grasshopper Company
One Grasshopper Trail ¥
P.O. Box 637
Moundridge, KS 67107 U.S.A.
www.grasshoppermower.com

MVP™
MULTIPOSITION V PLOW



ONE SNOWPLOW DOES IT ALL!

The versatile 8½' MVP™ snowplow from WESTERN® adapts to any plowing situation because it's hinged in the center to allow plowing in the scoop, "V" or straight blade position.

The feature that separates this plow from the rest is the exclusive, hand-held CABCOMMAND control. Now all blade functions – including moving the two wings in or out either simultaneously or separately – are right in the palm of your hand.

Add trip-edge blade technology, double acting cylinders and the patented Uni-Mount® System for easy on/off, and it's easy to see why the MVP snowplow provides the professional with the ultimate in plowing efficiency.

WESTERN

WESTERN PRODUCTS 7777 N. 73rd Street Milwaukee, WI 53223
World Wide Web: <http://www.westernplows.com>

Circle No. 136 on Reader Inquiry Card

Century Rain Aid has acquired The Pipe Connection, a three-store distributorship in Utah. The expansion into western US markets brings the total number of locations to 83 branches in 20 states and Canada. The new branches are located in Draper, Salt Lake City and St. George, Utah. www.rainaid.com

The Board of Directors of **Briggs and Stratton** has elected William Reitman, VP of Marketing, as a corporate officer. Marv Klowak has been named VP of Engineering and Quality Assurance.

Case Corporation has introduced AvailabilityMAX, a new dealer parts inventory management process that significantly improves parts availabil-

ity, selection and service for customers. AvailabilityMAX is presently up and running at select Case dealerships. www.casecorp.com

Castart® by Naturescapes™ has been approved to franchise in California. California, an important pool and landscaping market, is one of 14 states which require franchisers to comply with individual state law and regulation rather than relying solely on the FTC's regulations. www.castartinc.com

CCL Organics has hired Ed Ruszel to manage its organic material collection and recycling company in the East San Francisco Bay Area. The company is licensed to handle approx. 30,000 yd³ of material a

year, which it composts and sells as a soil amendment.

JCB, Europe's largest construction equipment manufacturer announced that it is building its first factory outside Britain. The new plant, to be located in Savannah, Georgia, is to be 500,000 sq. ft and create up to 100 jobs in the first phase. The factory will initially make backhoe loaders. Manufacturing is planned to start late 1999.

Sales and Marketing Management magazine has awarded **John Deere** with the "1997 Best Sales Force Award", after looking at sales performance during the past three years, reputation for customer service and reputation for employee satisfaction, revenue growth, number of sales peo-

ple and keys sales executives.

Keystone South now represents **Keystone Retaining Wall Systems** throughout Georgia, Florida, and eastern Tennessee. Scott Pannell, Sales Manager, will be based in Atlanta.

Nature Safe Natural and Organic Fertilizers announces a new distributor, Golf Enviro Systems, which will cover Colorado, New Mexico and west Texas. www.naturesafe.com

Toro has a new marketing strategy to expand the distribution of Toro-branded mowers to selected home centers. This is a change from Toro's exclusive distribution of its mowers through independent dealers. The plan is to build on the ability of dealers to combine sales and superior after-sale service by matching dealers with home centers to begin a partnership of customer service. Toro Super Recycler mowers will still be exclusively distributed through dealers. www.toro.com

Turf-Seed, Inc. has brought on John Rector as National Sales Representative/ Agronomist, to act in a sales and advisory role and to help set up turfgrass trial plots in strategic locations. Rector has 20 years of Southern California sod-producing experience, including management of cool and warm-season turfgrasses, agronomy, pest control, research and development, marketing and sales. www.turfseed.com

Info center

VIDEOS AND LITERATURE FOR THE GREEN INDUSTRY

PlantAmerica CD-ROM... Allan M. Armitage's Photo-Library of Herbaceous Plants contains images of annuals, perennials, ferns, bulbs, ferns, wildflowers and ornamental grasses, as well as cut flowers, bedding plants and greenhouse crops. Over 2,600 different plants and cultivars, with over 7,000 images, can be accessed by common, scientific and family names. Available for \$149.95 + \$5 shipping, from PlantAmerica at 888-PLANT-CD or www.plantamerica.com

An Environmental Approach to Golf Course Development... is a 48-page brochure available from the American Society of Golf Course Architects. Developed for any person or group involved in golf course development, the brochure provides information on how golf courses complement the environment and includes 12 case studies, specific checklists for reference during the permitting process and a list of suggested references and organizations. The brochure is available for \$10, from the American Society of Golf Course Architects. 221 N. LaSalle St., Chicago, IL 60601.

Free storm water retention/detention design CD-ROM... from Hancor, Inc. The LandMax CD-ROM has over 100 CAD drawings to allow users to design their own storm water retention/detention systems. Compatible with all Windows'95 and NT-based systems, the CD includes pipe drawings, as well as complete design information and installation guidelines for the underground LandMax system. To receive a copy call (800) 848-3546, ext. 258 or fax (419) 424-8302.

Events

SEPTEMBER

11: Building With Trees Workshop Sacramento, CA. For more information contact the National Arbor Day Foundation at (402) 474-5655

11-13: Florida Nursery and Allied Trades Show Orange County Convention Center, Orlando, FL. Call (800)375-FNGA, fax (407) 295-1619, or email fnga@aol.com

15: Turfgrass Research Conference and Field Day UC Riverside, Riverside, CA. Contact Susana Vélez at (909) 787-4430 or email

susana@ucr.ac1.ucr.edu

16: Landscape Management Research Conference and Field Day UC Riverside, Riverside, CA. Contact Susana Vélez at (909) 787-4430 or email susana@ucr.ac1.ucr.edu

16-18: National Lawn and Garden Trade Show Philadelphia, PA. Contact Liz Wylie at (203) 847-9599

18-19: Washington Landscape Trade Show and Field Day King County Fairgrounds, Enumclaw, WA. Contact Peter Dervin at (800) 833-2186

22-24: Turf and Landscape Field Days Virginia Tech Campus, Blacksburg, VA. Contact David McKisack at (540) 231-5897 or email turf1@vt.edu

9350

15: Building With Trees Workshop Laurel, MD. For more information contact the National Arbor Day Foundation at (402) 474-5655

OCTOBER

7-8: Western Nursery and Garden Expo Sands Expo Center, Las Vegas, NV. Contact Margo Chevront or Uraina Perry at (800) 517-0391

7-9: IPAA Annual Convention 'Mystery in the Woods' Skamania Lodge, Stevenson, WA. Call David Harlan (425) 823-2600

8-10: International Plug Conference Hyatt Orlando Hotel, Kissimmee, FL. Contact Ball Publishing at (630) 208-9080 or fax (630) 208-

20-23: Southwest Turfgrass Conference Convention and Civics Events Center, Ruidoso, NM. Contact Curtis Smith at (505) 275-2576

25-28 Southern Crop Protection Association Kingsmill Resort, Williamsburg, VA. Call (912) 995-2125 or fax (912) 995-4000

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Vander Kooi & Associates, Inc.

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LM



Powered hauler from Foster

The Haulzall is a 450-pound machine with an 800 pound load capacity and a 7.4 ft³ hopper. The hauler has a comfortable forward walking speed and a controlled slower reverse speed as well as a 360° rear-swivel wheel, for easy control and maneuverability. Powered by a 5 hp Honda engine and able to carry any load up a 20° incline, the Haulzall also has automatic and parking brakes. The variety of attachments include a flat bed, snow plow blade, hydraulic lift-dump cylinder, dolly attachment, trailer hitch attachment. For more information contact Foster Manufacturing Corp., Racine, WI at (414) 633-7073, fax (414) 633-4458 or

Circle No. 250

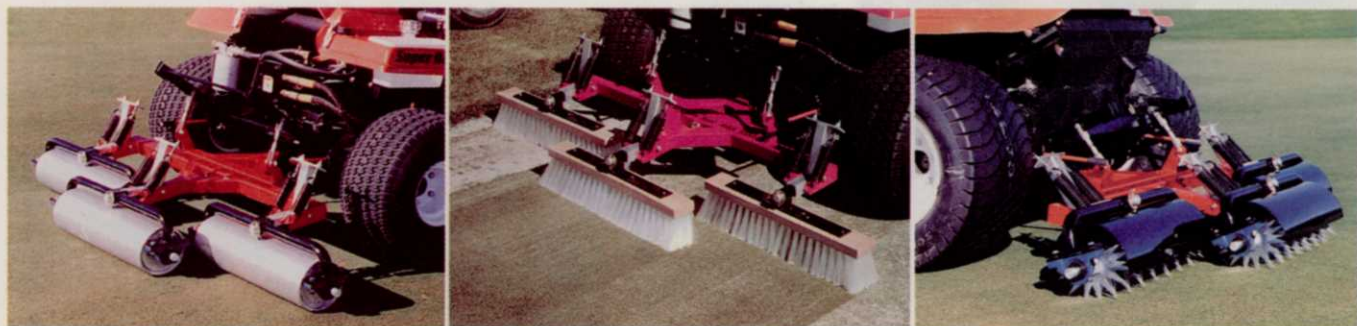
Green Star 3- implement system

The Green Star RBS System for the rolling, brushing and spiking of greens and turf, is now available on all Smithco bunker rakes. The system can also be mounted on Toro Sand Pro and Ransomes/Cushman bunker raking units.

All three implements (shown below) mount with Smithco's Quad-Pivot hook-up system, designed to allow maximum flexibility and conformity to undulating terrain. The implements are available separately or as a complete three-function system.

For more information contact Smithco at (610) 993-8181 or

Circle No. 251



Hydraulic powered pruner

The PR41 hydraulic powered pruner from Stanley offers rugged, heavy duty cutting power in a lightweight, balanced and durable pruner. The lightweight head design and full power operation make the pruner fast, efficient and safe to operate. An external knife adjustment allows easy maintenance for peak cutting performance. The unit weighs 11.5 pounds and can cut branches up to 2.25 inches in diameter. It is 84 inches long, with a flow range of 3-9 gpm and 1000-2000 psi.



For more information contact Stanley at (503) 659-5660 or

Circle No. 252

New preemergent from Scotts

Scotts introduces Barricade, a preemergent herbicide for crabgrass and *Poa annua*. Due to its long residual, Barricade is well-suited to fall application in both northern and southern climates. A properly timed fall application in southern areas can control *Poa annua* while in northern climates a fall application can control crabgrass in the spring.

Barricade comes in two formulations: a low-nitrogen, high potassium formula, 8-4-24 plus 0.426 percent Barricade, and a high nitrogen/high potassium formula, 21-0-20 plus 0.426 percent Barricade.

For more information contact Scotts at (800) 543-0006 or

Circle No. 253

Marble chips for the landscape

Marble Dimensions has a new line of marble chips available in a variety of colors, including gray, red and green, and two sizes of chips. An alternative to presently available rock products, the chips can be purchased in 40 pound bags or in bulk. For more information call (801) 943-2995, fax (801) 943-2865 or

Circle No. 254

Soft-Plug aerator from JRCO

The Model 700 Series Hooker Soft-Plug Aerator is a front-mount model which fits commercial hydro walk-behinds and riding mowers.



The 38" wide aerator has zero-turn maneuverability with up to a 3" hole depth and can aerate 66,000 ft² per hour at 5 mph.

For more information

contact JRCO, Inc., P.O. Box 41304, Minneapolis, MN 55441, call (800) 966-8441 or

Circle No. 256

New Tupersan label

PBI/Gordon has announced two new label changes for Tupersan Herbicide Wettable Powder. It is now labeled for bermudagrass suppression into bentgrass golf greens and for application to roadside slopes and other areas via hydroseeding and other hydraulic seeders. Gordon's Tupersan is a sprayable formulation of siduron. It is the only sprayable pre-emergent herbicide that may be used in newly-seeded areas or even applied at the time of seeding without causing injury to germinating seedlings of most cool-season turf-grasses. For more information, call PBI/Gordon Corp. at (800) 821-7925.

Circle No. 257

PELA Oil Extractor

For quick and easy oil changes on power equipment the PELA Oil Extractor is a manually operated vacuum pump that sucks out old oil from the engine crankcase. The integrated container holds 1.7 gallons, preventing spills and has a built-in float switch which automatically shuts the pump off once the container is full. This tool eliminates the need to remove drain plugs when changing oil. The Oil Extractor is



easy to use, fast and very clean.

For more information call Pelican Marine at (888) 272-7964 or

Circle No. 255

New Husqvarna chain saw

The new Model 350 chain saw from Husqvarna offers a combination of toughness and a power-to-weight ratio of 0.48 kw/kg. Although weighing only 10.6 pounds without the 18" bar and chain, the 3.1 cubic inch (50 cc), 3.1 hp engine can generate more than 13,000 rpms at top speed. The saw chain is a reduced kickback chain combining low vibration and high performance.

For more information contact Husqvarna at (800) HUSKY62, website www.husqvarna.com, or

Circle No. 258



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Fax to (518) 783-1258

TurfVent corecaster

Feldman introduces a front mount turf aerator which turns without tearing the turf. The new TurfVent CoreCaster CTV-



52 core plug aerator allows the operator to aerate while turning in any direction, no matter how sharp the turns.

Featuring heavy-duty caster assemblies with 360° dual-quad tine clusters, the CTV-52 has a 52" effective coring swath. The Turf-Vent Ejector coring tines have a 3.5" maximum penetration. The CTV-52 comes equipped with the connections needed to attach to all motorized equipment with a Category 1 three-point hitch.

For more information contact Feldman Engineering at (800) 344-0712, e-mail feldman.engineering@excel.net or

Circle No. 259

FMC gives PBI Gordon rights to herbicides

FMC Corporation and PBI/Gordon Corporation have announced a recent agreement covering two new FMC herbicides, sulfentrazone and carfentrazone-ethyl. US marketing rights for the use of these compounds in PBI Gordon's Trimec herbicides have been assigned solely to PBI/Gordon for professional turf and ornamental, industrial vegetation management and consumer product markets. For more information, contact PBI Gordon at (800) 821-7925 or,

Circle No. 261

Rain Bird says new Easy Rain is better

Rain Bird Sales, Inc. has made several improvements to its Easy Rain battery-operated controller.

Designed for residential and light commercial applications, the single-valve controller is powered by an alkaline nine-volt battery. The improvements will help boost the Easy Rain's overall performance, including a pressure rating of 150 psi and a self-cleaning solenoid. For more info, contact Rain Bird at (626) 963-9311 or

Circle No. 262

Packaged mulch available

Garick Corp. has mulches now available in the Bark Bale, 4 yd³ of mulch compressed into a bale a little over 2 yd³. The compressed bale means that there is no need for a bucket loader or dump truck as it can be handled using a forklift. Easy to store and handle, inventory control is also simplified. The Bark Bale is available in hardwood, Ozark cedar, cypress, pine and Alabama Auburn, a reddish oak material.

For more information call (800) 2GARICK extension 15 or

Circle No. 260

Bunton BZT 31

The new zero-turn rotary mower from Textron Turf Care and Specialty Products also has a liquid-cooled gas engine. The Bunton BZT 31 is powered by a 3-cylinder, 31 hp, liquid-cooled Briggs & Stratton Daihatsu engine, designed to provide cooler, quieter engine operation and longer, more dependable engine life.

The BZT 31 features a 72" cutting deck with adjustable cutting heights from one to five inches, using the electronic deck lift and adjustment system. The mower can travel up to 9.5 mph, has 24x12-12 tires, a wider wheelbase than other mowers and a low center of gravity. An optional rollover protection system is also available.

For more information call Textron at (414) 635-1249 or

Circle No. 263



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