

# To Infinity And Beyond

By FRANK H. ANDORKA JR.  
Associate Editor

In a country where Buck Rogers and Captain Kirk fueled expectations of what technological advances future centuries might hold, it's no surprise that superintendents expect greens mowers in the 21st century to follow a similar path.

Superintendents want future mowers to cut with lasers, be controlled by satellites and fix themselves. Heck, one superintendent even wants his greens mower to make coffee for him in the morning.

While the coffee idea might be a stretch, the rest of the high-tech gadgets superintendents expect to see on greens mowers might not be so pie in the sky. Companies are conducting intense research into alternative power supplies, disease-sensing monitors and the possibility of integrating mower controls with the Global Positioning System (GPS). Experts say the real question is not if these innovations are possible, but when will superintendents be able to start using them.

Helmut Ullrich, marketing manager for Toro's Greensmasters line of mowers, says one superintendent with whom he spoke described the perfect mower of the future. "He said the perfect greens mower should be a solar-powered hovercraft with a laser that will cut the grass to the ideal height to get the most speed on the greens," Ullrich says. "We're not quite to that point, but we're definitely making strides on a lot of fronts."

Ullrich says mowers in the new century will probably move from fixed cutting decks to flexible ones, and he said mowers will have narrower profiles as well. Those adjustments will help superintendents mow at lower heights because the machines will hug the contours of the greens more closely. It's the same theory that propels most razor innovations — the closer the blade hugs the surface, the closer the cut.

Mowers will also become more operator friendly, a factor that's increasingly important in a world of frequent employee turnover, Ullrich says. "We want to create a mower where the operator can diagnose problems and fix them, possibly

without a mechanic," Ullrich says.

Corey Eastwood, CGCS of Stockton Golf & CC in Stockton, Calif., says he's not as convinced as other superintendents that mowers powered by GPS — a government network of 24 satellites orbiting the earth that tracks the location of moving objects on the ground — will work. "I can't believe you can take the human element out of this job," he says.

Still, integrating mowers into GPS is something all companies are exploring. Chuck Greif, manager of worldwide golf and turf market development for John Deere Co., says such robotic mowers are about 10 years away, but it's not for a lack of trying. Computer technology will have a great impact on how mowers of the future will operate.

Not only will mowers cut grass without operators, but they will also have a feature called parallel tracking which will guarantee straight lines on the greens, Greif says. It would allow superintendents to mow greens by remote late at night, knowing that they won't be destroyed in the process.

Mowers will also include sensors to track fungal development and nutrient levels on greens. Combined with the latest computer technology, these mowers will transmit such data to superintendents, allowing them to adjust pesticide and fertilization plans accordingly, Greif says.

Greif adds that the speed of the rollouts depends on how many industries can work together to develop new technologies. For example, alternative power sources that

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# Comparing the New Bents

*Instead of searching for the mythical "champion" bentgrass, look for types that are best adapted to the unique conditions of your course.*

By DAVID HUFF and PETER LANDSCHOOT,  
*The Pennsylvania State University*

The recent availability of numerous new creeping bentgrasses has, for some golf-course superintendents, seemed more like an onslaught than a salvation. Deciding which of the new cultivars are best, whether to plant a single cultivar or a blend and how the performance of the new bents may affect management practices is not simple. A superintendent's life may have seemed easier when there was only Penncross to buy, plant and manage. It might be some consolation to superintendents to realize that, at one time, acquiring seed of any bentgrass was a challenge.

## A Colorful History

During the late 1800s and early 1900s many golf greens consisted of red fescue and Kentucky bluegrass. In the early 1900s, what was then known as "South German" bentgrass (SGB) revolutionized the golf industry. Superintendents ("greenskeepers" then) across America were switching to SGB.

However, the composition of SGB seed was highly variable. "Good" SGB seed contained 40 to 60 percent colonial bentgrass, 5 to 40 percent velvet bentgrass and 5 to 15 percent redtop, but only a trace of creeping bentgrass. Even though the "good" SGB contained only a trace of creeping bentgrass, it was enough that, over time, greens would eventually become mostly creeping bentgrass or a mix of creeping and velvet bentgrass. "Bad" SGB seed didn't contain even a trace of creeping bentgrass seed and typically consisted mostly of redtop, a bentgrass of forage quality.

During World War I, the supply of SGB seed dropped to such an extent that superintendents faced enormous pressure to only use what they absolutely required so that "the other fellow" would have enough.

Tight supplies, high prices and the variable quality of SGB seed lots eventually forced superintendents to look for alternatives. In the early 1920s people began to notice creeping bentgrasses segregating out as large, distinct patches on older greens (20 to 30 years old). Some of these patches were aggressive and exhibited high shoot density, fine leaf texture and better resistance to brown patch than SGB. Selection and vegetative propagation of these bentgrasses eventually enabled clubs across America to become independent of European supplies, thus beginning the era of vegetatively propagated bentgrass. Soon, many clubs switched to vegetatively propagated bentgrasses.

The reason these bentgrasses needed to be vegetatively propagated is that creeping bentgrass is a cross-pollinated species. This means that to produce seed, a plant's flowers must be fertilized with pollen from a different, genetically distinct plant. The result is that no two seedlings are genetically alike. Seed propagation would therefore not preserve the desired characteristics. By contrast, vegetative strains selected and propagated from a single patch consistently produce high quality because, lacking genetic variability, they are completely uniform. Early

greenskeepers knew that one of the secrets of maintaining vegetative bentgrass was to prevent your nursery from flowering, thereby setting seed and contaminating the pure vegetative stand with variable bentgrass seedlings.

These strains' lack of genetic variation was also a disadvantage. If a strain became susceptible to a particular disease, an entire green or even a whole course would be at risk. Equally important, perhaps, was the problem of repairing damaged areas, which required either sodding or stolonizing.

Compared with seed, commercial sod is difficult to distribute, which sometimes made it hard to find the material to repair greens. Therefore, seeded bentgrasses remained a sought-after commodity. One commercial source of bentgrass seed did exist in North America. It was known as Rhode Island Bent, but it was a colonial bentgrass that was highly susceptible to brown patch (as was SGB). However, natural stands of creeping bentgrass existed along the Eastern Seaboard and the Pacific Northwest coast of the United States, and these were thought to be potentially useful. Unfortunately, the seed proved too difficult to harvest until the early 1920s, when Lyman Carrier WHO IS THIS? found a stand of bentgrass that produced enough seed to allow for mechanical harvest. This source became known as Seaside creeping bentgrass. For many years, superintendents had a choice of stolonizing with a vegetative bent or seeding with Seaside.

## A Star is Born

From the 1920s through the 1950s, turf breeders continued to collect vegetative samples from the segregating patches of creeping bentgrasses on older greens. The U.S. Golf Association and the U.S. Department of Agriculture systematically conducted these collections. In 1954, Dr. H. B. Musser at The Pennsylvania State University developed the first "synthetic" cultivar of creeping bentgrass by crossing the vegetative strain PennLu with two other vegetative samples from the USGA/USDA collection. The result was Penncross: more aggressive, dense and disease-resistant than Seaside.

Soon, Penncross became the industry standard and remained so for many years. That is, until the recent introduction of what are known as the "new generation" bents—a collection of improved cultivars originating from multiple sources and often having specific adaptations and enhanced management requirements.

It's interesting to note that, because bentgrass flowers are mowed off at green height, no actual breeding takes place on greens and no new types come into existence. Thus, any existing bentgrass plants on a green must have been there since it was last seeded. The conditions on golf greens simply favor some types more than others, so greens maintenance automatically "selects" for the plants that are best adapted to greens use.

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# Control Those Shrinking Greens

*Pay close attention to avoid those slow, incremental changes*

By **KEITH HAPP**  
*Agronomist, USGA Green Section*

Have you ever noticed how the size of a putting green seemingly changes over a period of time? We all realize that putting greens do not actually grow or shrink. However, because of fast growth and frequent mowing, this concern about putting green size is real.

At many courses, seasonal workers are employed to mow putting greens, and many of these employees may not have worked on a golf course before. Prior to mowing that first green, each crew member is instructed on the entire procedure. This includes lowering and raising the mower when entering and exiting the surface; turning (off the collar!) cutting in a straight line and, the final step, the cleanup pass or passes.

During the training process, mowing a green can be an eye-opening experience. The cleanup pass is always nerve-racking for new employees because they do not want to make a mistake. When their training is complete and crew members are on their own, the last thing they want to do is scalp the collar. To minimize the chances of this occurring, they tend to mow just inside the green/collar perimeter, and over time the putting green surface area can shrink. If this pattern is left unchecked, collars tend to widen while greens become smaller.

Some facilities do not rely on seasonal help. Rather, they opt to employ part-time (nine or ten months) or full-time workers to meet their staffing needs. Crew members are cross-trained in many jobs so that daily course preparation can be completed. But even well-trained and reliable crew members tend to err on the conservative side when completing the cleanup passes for each green mowed. Again, the greens may begin to shrink.

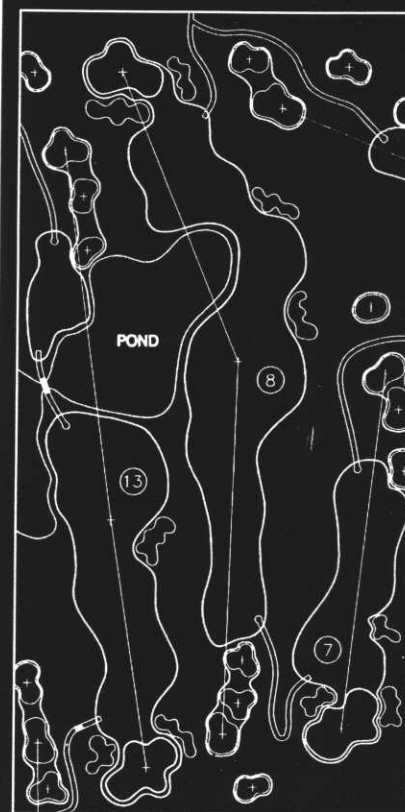
Jim Loke, CGCS from the Bent Creek Country Club, Lititz, Pennsylvania, devised a method to address the shrinking green problem. Initially, two paint guns were used to mark a consistent collar width around each green. The paint guns are held together by PVC pipe. It produces a rigid marking tool that allows Scott Chaffee, Assistant Superintendent, to check the 36" collar width. The marking apparatus has since been modified to allow the process to be more efficient and user friendly.

The procedure is performed periodically during the season, and if the shape of the green being marked has not changed, then there is no need to paint an edge. However, if major adjustments are needed, they are made in the fall. This tool provides a fast and accurate method for maintaining the shape of the putting surface and a consistent collar width to control those shrinking greens.

\* \* \* \*

*(Editor's Note: KEITH HAPP is an Agronomist in the Mid-Atlantic Region of the USGA Green Section. Reprinted from the USGA Green Section Record 1996 March/April Vol 34(2): 12-13.)*

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## Bentgrass--

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### The Next Generation

As with Penncross, the new bentgrass cultivars have been selected and developed from patches on old golf greens. Unlike Penncross, however, the new bents' parents survived under more modern conditions of close mowing heights, high traffic and a greater variety of temperature extremes. Thus, the conditions on greens that selected the parents of Penncross were different than the conditions that have selected (and continue to) the best of the progeny of Penncross.

It's interesting to note that, because bentgrass flowers are mowed off at green height, no actual breeding takes place on greens and no new types come into existence. Thus, any existing bentgrass plants on a green must have been there since it was last seeded. The conditions on golf greens simply favor some types more than others, so greens maintenance automatically "selects" for the plants that are best adapted to greens use.

When breeders collect these surviving progeny from greens and then breed them, their genetic information is shuffled like so many playing cards, creating offspring with entirely new genetic combinations that potentially are even more adapted to greens conditions than their parents. This is, essentially, how the new bents have been created.

Many of the new bents are more specialized than Penncross, which is relatively widely adapted. In addition, the new bents typically have finer leaf texture, higher shoot density and more upright growth. These characteristics tend to give them a higher

overall turf quality than Penncross. Further, the new bents generally show less grain and tolerate closer mowing heights.

Much of the breeding activity in creeping bentgrass has been aimed at developing bents that will perform better in the South. There, hybrid bermudagrasses are highly sensitive to the occasional cold spell. The winter of 1984, which killed many bermudagrass greens, prompted many courses to replace their bermudagrass greens with creeping bentgrass. However, the bentgrasses available at that time were often severely stressed by the summer heat of the South. New, heat-tolerant varieties have helped fill the need for bentgrasses adapted to the South.

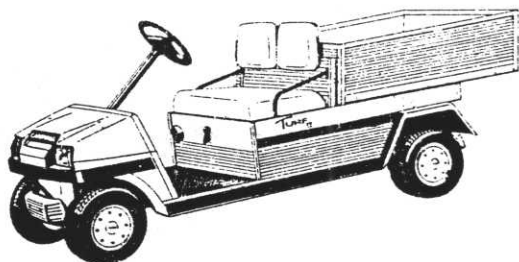
On the other hand, some new cultivars of creeping bentgrass have been specifically developed for more northern climates. Thus, the choice of which new bent to grow really depends on where you'll grow it and how you'll maintain it.

Sometimes the original parents of a cultivar can provide some insight as to what to expect in the offspring. For example, the parent germplasm of Crenshaw came mostly from Southern origins (Arizona and Texas) while Cato had more mixed parental sources (Texas and Michigan). The addition of more Northern germplasm may be one reason why Cato exhibits better dollar spot resistance than Crenshaw.

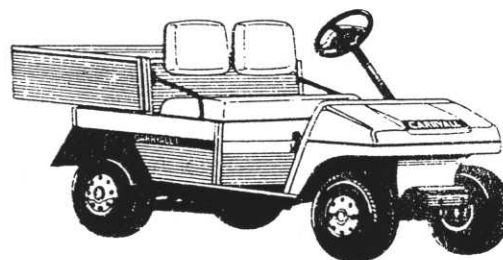
So, how far have we come? To put it in perspective, consider this statement by Fredrick Hood, the superintendent at The Country Club (Brookline, Mass.). In 1922, when the acceptable greens height of cut was between 1/2 to 3/8 inch, Hood wrote, "The length to which the grass is permitted to grow varies with individual taste, but, as a rule, the grass on putting-greens in America is cut too short for real skill in putting." You be the

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# American Heroes Headline Dallas Conference and Show

The Alamo in San Antonio, the grassy knoll in Dallas, Houston's Johnson Space Center... Texas is the land of legendary places and heroic efforts. Join GCSAA in Dallas for the 2001 conference and show and get inspired by the tales of two modern American heroes.

The conference formally kicks off Wednesday, Feb. 14, with a presentation on leadership by H. Norman Schwarzkopf, retired U.S. Army general and commander of Operations Desert Shield and Desert Storm. Schwarzkopf coordinated the efforts of all allied forces from August 1990, soon after Iraq invaded Kuwait, until August 1991.

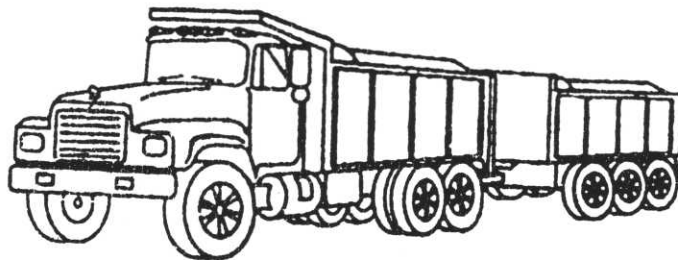
He has written a best-selling autobiography, "It Doesn't Take a Hero," and has appeared in several television specials. Now retired, he devotes much of his time to philanthropic efforts, including The Nature Conservancy and the STARBRIGHT Capital Campaign. Above all, Schwarzkopf is an experienced manager who understands people, motivation and leadership.

Thursday's Golf General Session will feature Capt. Scott

O'Grady, U.S. Air Force F-16 fighter pilot, who was shot down in 1995 while enforcing the NATO no-fly zone over Bosnia. The story of his six-day survival behind enemy lines is a tale of courage, faith and patriotism.

The autobiographical account of O'Grady's survival and rescue, "Return With Honor," spent six weeks on The New York Times best seller list. His courageous story has also been documented on the Discovery Channel presentation, "Behind Enemy Lines." In addition, O'Grady was featured on CNN's "Voices of the Millennium," a series that focused on the most influential personalities of each of the centuries in the millenium.

GCSAA's conference and show is also a time to recognize the heroes of the golf course industry. The Opening Session will include the presentations of GCSAA's Golf Championship trophy, Distinguished Service Award and Leo Feser Award. During the Golf General Session, GCSAA's highest honor -- the Old Tom Morris Award -- will be presented. This session will also recognize the recipients of the Environmental Steward Awards.



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# Getting Attached to Versatility

*Equipment with an array of attachment options  
can boost your flexibility and productivity*

By MIKE KENNEDY

The low pressure exerted by the Posi-Track all-purpose crawler enables it to climb hills and get to difficult-to-reach spots.

In baseball, the limelight shines most brightly on mighty sluggers like Mark McGwire and Sammy Sosa, who do one thing especially well: hit home runs of jaw-dropping distance.

But many managers will tell you the under-appreciated element of a team's success is the utility player. He can shag fly balls in centerfield one day, dig throws out of the dirt at first base the next day and deliver a clutch pinch hit the day after. By filling more than one role, he makes the team more efficient and allows others to focus on what they do well.

In your equipment shed, that kind of flexibility is just as valuable. An extra-versatile machine that can clear snow one day, dig trenches the next day and lift pallets the day after can save you time and money.

Skid-steer loaders and other utility equipment can be outfitted with dozens of attachment options that greatly expand the tools available to you without gobbling up all your storage space-or your bank account.

## The Sum of the Parts

The product descriptions hint at the range of these machines. Toro calls its Dingo compact utility loader "a power plant on wheels." Leon's Manufacturing Co. says the capabilities of its Ramrod mini-skid loader are "limited only by the user's imagination."

"People are constantly amazed at the number of things you can put onto a skid loader," says John Osarczuk, New Holland Construction's product manager for skid steer loaders.

Such as?

The list is long:

There are tilt attachments that let you use buckets or other attachments on angles or hills; a water kit that sprays a water mist onto a work area; augers to drill holes for fence posts, trees or utility poles; backhoes; a bale spear to lift and haul bales without damage; a concrete mixer; dozer blades of various sizes, palm graders and snow blades.

And more.

There are buckets of varying shapes and sizes; cold planers to plane concrete and asphalt; demolition/scrap shears

that cut through ferrous and non-ferrous materials; tree shears; drills; a log grapple to pick up and move logs; a scrap grapple for bulky loads; hydraulic hammers to break up concrete; different varieties of rake attachments to groom soil, grade or clean up; a rock picker; a tiller to cultivate land; manure scrapers and forks.

Is that all?

Not yet.

There are mower attachments-rotary mowers and flail mowers-sod layers; pallet forks; a post driver; rock wheels to cut through rock, concrete, asphalt or frozen ground; snow blowers; stump grinders; scarifiers; trenchers; rollers; sweepers; brushes, and brooms.

You can get a wide variety of tires, or rubber or steel tracks; tree spades let you dig up and transplant trees and shrubs.

## You Can't Keep 'em Down on the Farm

The skid-steer loader has come a long way from its origins 30 years ago as a modest piece of equipment moving manure and bales of hay on farms. Its compact size and ability to turn quickly allowed it to get to places larger equipment couldn't reach.

Over time, as more attachments have become available and interchangeability of the attachments is more common among skid-steer brands, the popularity of the machines has mushroomed in the worlds of construction and maintenance.

"If you have a dedicated working condition, and it's a very high-productivity application, it makes sense to have a specific machine that does one thing," says Osarczuk. "But more and more, construction crews are using a skid loader that can handle a lot of applications."

That has made the skid-steer loader market that much more competitive.

Besides the Melroe Company's Bobcat, which introduced the skid-steer loader in 1970, there are plenty of companies offering their own versions-Case, New Holland and Gehl-and the field is getting more crowded.

Last year, John Deere began to design and manufacture its own skid-steer loader. Earlier this year, Caterpillar entered the market when it introduced a line with six models.

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## Versatility-

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### Smaller than a Skid-Steer

In terms of versatility, the Toro Dingo's capabilities-it has more than 35 attachments available-are comparable to skid steers. But the company emphasizes that the Dingo is not a skid steer loader, but a compact utility loader.

A worker operates the Dingo by standing on a rear platform instead of sitting, and the machine is smaller than a typical skid steer.

"Through our research, we have found that there are still a lot of manual labor tasks where it's not practical to bring a skid-steer loader," says Pat Cappucci, senior marketing manager for the Dingo. "The Dingo is a lot lighter and easier to handle."

Toro also has a trailer specifically made to haul the Dingo and its attachments.

Another smaller piece of equipment with an array of attachments is the Ramrod Taskmaster line of mini-skid loaders, which is also geared toward jobs in confined areas that larger equipment can't reach. The operator controls the machine by standing on a rear platform.

Another small machine that offers versatility is the Gardener series from BCS. Among the attachments available are tillers, hiller/furrowers, sickle bars, lawn mowers, snow throwers, sweepers, chipper/shredders, dozer blades and suikies.

The handlebars on the machine rotate 180 degrees, so you can switch quickly from a rear attachment to a front attachment, says Cherie Bazzell, a spokeswoman for BCS.

### Other Options

The Posi-Track all purpose crawler, manufactured by All Season Vehicles (ASV), claims extra versatility not only because of the attachments available it can use, but also for the low ground pressure it exerts. That gives the machine added flexibility, says Jay Lemke, a spokesman for ASV. After all, having an attachment won't do you any good if your equipment can't get to the job site.

"The Posi-Track is light on the grass and won't tear it up," says Lemke. "It will also go up hills and through mud and snow to

get to places where you want to use your attachments."

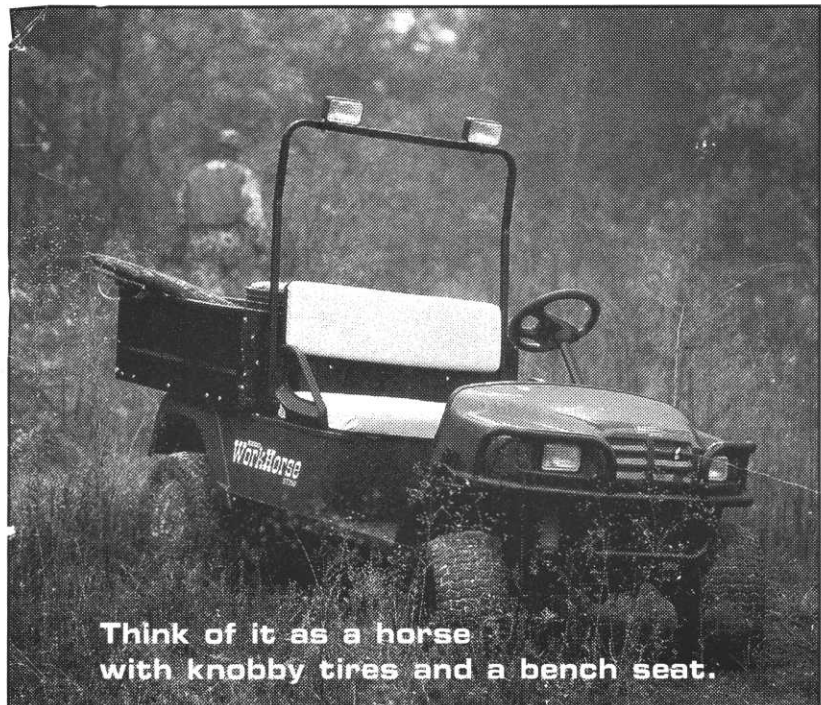
Mowers offer attachment options to expand their versatility. Besides cutting grass, the Jacobsen Turfcut and the Ransomes 700 series can be equipped with attachments such as a snow blower, a leaf or debris blower, rotary broom or dozer blade.

In addition to various mower blades, Excel Industries Inc. offers plenty of attachments for other jobs: snow blades and blowers, stump cutters and edgers.

The Grasshopper Co. sells mowers with optional attachments such as vacuum collection systems, dethatchers, aerators, bedshapers, rotary brooms, snow blowers and blades.

Tractors haven't been left out of the attachment craze, either. John Deere's 4000 series of machines can be outfitted with backhoes, loaders, a variety of mowers, brooms, snow-blowers, posthole diggers, blades and tillers.

Kubota Tractor Corp.'s compact and utility tractors have a similar array of attachments available: snow and debris blowers, blades, scrapers, buckets, tillers, backhoes and diggers.



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# Bentgrass--

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judge.

## Choosing the Right Bentgrass Cultivars For You

\* Do your homework. Before selecting bentgrass cultivars for new putting greens, do some research. There are databases of information that can help you, including the National Turfgrass Evaluation Program (NTEP) and the new On-site Bentgrass Testing Program, which evaluates cultivars under real-world putting green conditions. Consult your peers, USGA agronomists, university specialists and consultants. You might not have to risk trying a new variety if a nearby course is already growing one successfully. Just remember that nobody, no matter how close their course is to yours, has exactly the same conditions, so don't neglect seeking trial results. Also, ask seed company representatives about any special management requirements of their bent products. After you have narrowed your selection of bents down to several likely candidates, grow them out in a nursery area or practice green that you maintain just like your regular greens. You will be able to judge first hand how well your choices perform. You may find that you'll have to alter your management practices to fit the grass.

\* Blending. Consider using blends for new putting greens. This practice, once frowned upon, has recently gained acceptance among many golf-course managers. But be careful. Blending is a balancing act that looks easy when done well, but requires experience. One of your best sources of information concerning blending is your seed representative. If you attempt blending on your own, use cultivars with similar texture, growth habit, density, aggressiveness and color. There is little value in including a disease-susceptible or otherwise inferior cultivar in the blend in hopes that its problems will be completely overcome by the other cultivars. Choose strong varieties only.

\* Management. Many of the new bentgrasses require different management inputs than older cultivars. For example, some cultivars are more dense and build up thatch and mat faster than Pennncross greens. This means that you may have to aerate, topdress and verticut more often to prevent puffiness. Also, fertility requirements of some of the new bentgrasses may be different from older cultivars.

Establishing any of the new bents into existing Pennncross greens through overseeding might not result in a rapid conversion to the new bent. Due to the competitive nature of a well-established Pennncross green, such conversion may require several years or more before the new bent cultivar predominates.

\* Environment. Try to use cultivars that are well-adapted to the climate of your area and have good resistance to your problem diseases. Many of the new bentgrasses are adapted to specific environmental conditions, such as low mowing heights and summer heat stress; or perhaps low mowing heights, cold temperatures and snow-mold resistance; or low mowing heights and resistance to northern diseases like dollar spot.

The combination of factors that determine the criteria for selecting a bentgrass cultivar have changed. No single cultivar of bentgrass does best in all conditions. In other words, the decision of which bentgrass to plant should correspond to each superintendent's particular set of conditions. The choices available today can empower you to specialize your golf greens.

Drs. David Huff and Peter Landschoot are professors of turfgrass science at The Pennsylvania State University (University Park, Pa.).

## What Suppliers are Saying About Their New Bents

Here is a sampling of comments about some new bentgrasses. The varieties reflect the overall choices available to golf courses—some fill specific needs, while others boast wide adaptations. However, all have been selected for characteristics that take them a step beyond traditional bentgrass greens such as Pennncross.

Some of the most significant new bents were developed from selections in Augusta, Georgia, by Dr. Joe Duich of Penn State. Designated as the 'A' and 'G' series, these are marketed by Tee-2-Green. The 'A' and 'G' cultivars basically are greens-only varieties that thrive under—and even require—aggressive maintenance and very low mowing (1/8 inch) to fulfill their potential. According to Tee-2-Green, with proper culture, they produce fast, virtually grainless putting surfaces. Tee-2-Green also states that these varieties' fine texture and dense tillering resist spiking and help keep out Poa Annua. Deep roots improve heat, humidity and disease tolerance, as well as overall vigor.

Seaside II is another Duich selection (this time from Arizona) marketed by Tee-2-Green. Seaside II surpasses original Seaside for salt and heat tolerance, and overall turf quality.

One of the 'G' cultivars—Penn G-2—is carried by LESCA. G-2 covers the greens at Pinehurst and, according to Mark Laube, product manager for seed with LESCO, is a favorite of the pros. With extremely high density and upright growth, G-2 produces a non-graining, true-putting surface. Combine this with its good performance under low mowing heights—1/8 inch, and even down to 1/10 inch—and you can see why top golfers would enjoy G-2. G-2 doesn't require unusual fertility. Further, although aeration and topdressing are critical for preventing thatch buildup, Laube states that more frequent and lighter treatments are preferred to heavy topdressing and intensive aeration. Thus, disruption to play is minimized. "You basically can [aerate and topdress] in front of a golf group and it won't impede play," says Laube.

Two other LESCO varieties are Grand Prix (a new variety available in limited quantities) and Princeville. Laube describes these as more general-purpose "workhorse" varieties suitable for fairways and tees, as well as greens. In addition, Princeville shows the kind of salt tolerance you'd expect from a variety selected from ocean-side greens.

Agribiotech supplies three varieties—L-93, Crenshaw and Southshore. According to ABT's Dr. Richard Hurley, L-93's most notable asset is disease resistance. It has "no major weaknesses" in this area, says Hurley. It ranks at or near the top of NTEP trials in brown patch, dollar spot and snow-mold resistance in virtually all trial locations.

Another characteristic worth noting is L-93's density, which Hurley describes as "moderate to high." Though not quite as dense as some other new varieties, this is actually a benefit, according to Hurley, because L-93 requires less topdressing and aeration to prevent puffiness and thatch buildup—in other words, less management input. Hurley notes that L-93 is already used by more than 250 courses, so it has a solid real-world track record to back up its strong trial showings.

Crenshaw was selected for heat tolerance, and Hurley proclaims it the best variety available when it comes to bearing up under the summer sun. University research shows that this relates to its root development.

Southshore is a good all-around performer and rounds out ABT's selection of creeping bentgrasses.

(Continued on Page 32)

# Classified Ads

## FOR SALE

1995 Friend Speed Roller with Trailer  
National PTO-driven 5-gang  
Fairway Reel Mower  
plus....extra set of 5-gang verticut reels (1987)  
\$2,000 or Best Offer  
Contact: RED or MIKE  
Edina Country Club  
**(612) 922-9012**

## FOR SALE

Attachments for GM3000 Greensmower.  
A set of Spikers. Great shape.  
\$1,800 or best offer  
Contact: JOE  
**(763) 644-2560**

## FOR SALE

**Toro Pull Gang**  
All 7 units have new bedknives.  
Reels are sharpened. Ready to Cut.  
Plus:  
7 Extra Complete Cutting Units.  
\$2,500

Contact: CHRIS HASBROUCK  
Daytona Country Club  
**(612) 427-6110**

## FOR SALE

1995 Rhino, 11ft 4in  
PTO-driven Rough Mower  
\$4,000 or best offer  
Contact: GRAYLING IHLE  
Minnlowa

**507/943-3149**

## FOR SALE

1991 MN WANNER  
Pull-type, 200-gallon Sprayer with foamers  
and electrical hose reel. Excellent condition.  
\$2,795.00

Contact: MIKE or BILL  
Town & Country Club  
**(651) 646-6743**

## FOR SALE

LANDPRIDE 1548 SLITSEEDER  
Mounts on 3 pt. hitch \$4,500.00  
TORO 7-GANG REELMASTER  
\$1,250.00 or best offer.

Contact: CURT or TIM  
Kimble GC  
**(320) 398-2617**

## FOR SALE

1995 Buffalo Turbine Leaf Blower.  
Trailer mounted. Less than 100 hrs.  
Like new condition...\$5,000 or vbest offer.

Contact: TOM  
Burl Oaks Golf Club  
**(952) 472-7124**

## FOR SALE

2 Sets Sand Pro 14 Rakes  
with replacement parts...best offer.  
Contact: TOM or KEN  
Brackett's Crossing  
**(952) 435-2543**

## FOR SALE

1998 Toro 2300-D  
3-wheel Drive  
Perkins Diesel w/ 200 hrs. Like New!  
The Machine is ground, serviced  
and ready for the 2000 season.  
Contact: ERIC PETERS  
Southbrook Golf & CC  
**(320) 274-5355**

## FOR SALE

Toro HTM 175 Fairway Mower.  
New parts last season.  
\$5,000 or best offer.  
Two Ryan Aerifiers. Best Offer.  
Contact: MIKE  
Bluff Creek Golf Course  
**(612) 445-5588**

## WANTED

7-Gang Pull Frame for Toro Spartan  
Contact: TOM  
**(612) 786-2945**

## FOR SALE

Jacobsen Overseeder \$2,495  
Kubota M4700 (only 150 hrs)  
Turf Special: \$14,900

Contact: ROGER or DAN  
Olson Power Equipment  
**(651) 674-7019**

## FOR SALE

Ransomes 350D Fairway Mowers - 4 to choose  
from as low as \$1,500...

Many other items available!  
Call and let us know what you need!  
GreenImage, LLC **(651) 437-7747**

## FOR SALE

2 Air Max Circulating Fans  
5 h.p. Briggs Industrial Commercial.  
Less than 10 hours use. New condition.  
\$500 each or best offer.

Delivery available for all equipment.  
Contact: CHAD BRAUN  
Prestwick Golf Club  
**(651) 459-0288**

## FOR SALE

1995 Jacobson 22" Walking Greensmower  
Excellent Shape...\$2,800 or best offer.  
Backlapping Machine  
Good Shape...\$200 or best offer  
Contact: JIM KIMBERLY  
**(715) 926-4913**

## FOR SALE

1984 Ransomes Motor 180  
Superior 2 compartment beverage  
cooler with 1 compartment freezer (NSF)  
Beverage Air 2-compartment  
beverage cooler (NSF). Best Offer  
Contact: GREG HUBBARD  
Manitou Ridge Golf Club  
**(651) 777-1436, choice 5**

## WANTED

Greensking IV Cutting Units - complete set  
John Deere 3215 Cutting Units  
22" width  
5", 7-blade -- complete set  
Contact: PETE FELLAND  
Glenn Rehbein Farms  
**(612) 919-5672**

## FOR SALE

Jacobsen 13-40 Leaf Blower P.T.O.  
Complete-excellent condition-light use.  
\$2,500 or best offer.  
Contact: PETE DANE  
**(763) 295-2951**

## FOR SALE

1-5 gang "Easy Picker" Range Picker...\$500  
1-3 gang "Easy Picker" Range Picker...\$300  
Both are in good working order, few broken  
discs and misc. spare parts included.

Contact: BOB DISTEL  
Wayzata Country Club  
(between 7am & 4pm)  
**(952) 473-6955**

## FOR SALE

Toro Verticut Reels (set of 3)  
Model 04416.....\$1,500 or best offer.

Spikers Reels (set of 3)  
Model 04420.....\$1,500 or best offer.  
1993 Jacobson LF100 4w.d.

2336 hours w/reels  
Model 67786.....\$2,000 or best offer.  
Cushman Box Top Dresser PTO driven.....\$100  
Contact: WES or TODD  
Ridgeview Country Club  
**(218) 728-2583**

## FOR SALE

Goosen Bale Chopper  
13 h.p. Motor, used very little.  
\$3,000 or best offer  
Contact: STEVE SCHUMACHER  
Izaty's Golf & Yacht Club  
**(320) 532-4284**

## CUSHMAN MOTOR CO. USED EQUIPMENT FOR SALE

Cushman  
3-wh. Turf Trucksters w/hyd. dump from \$2,995  
4-wh. Turf Trucksters w/hyd. dump from \$4,795  
Core Destroyer for Cushman Mower \$2,495  
Toro  
216 Tri-plex Trim Mower \$1,995  
Brower  
7-gang PTO Drive Reel Mower \$2,995  
Jacobson  
Tri-King 3WD 1471 Trim Mower \$1,595  
Tri-King 3 WD 1672 Diesel Trim Mower \$2,995  
Tri-King 3 WD 1672 Diesel Trim Mower \$2,995  
Steiner  
4WD 425 Tractor 72" Deck \$8,500  
84" Reels (fits Steiner Tractor) \$2,595  
Boom Mower \$1,595

Cushman Motor Co.  
2909 E. Franklin Ave.  
Minneapolis, MN 55406  
**(612) 333-3487**

## USED EQUIPMENT FOR SALE

Demo Toro HC4000 Fairway Aerator - \$8,995  
Used Toro Hydro-Ject 3000, Like New  
(100 hours) - \$12,500  
Used Toro 580D 16' Trideck Rotary Mower  
#0505 - \$17,900  
Used Deere 3215 Fairway Mower - \$8,000  
Used Jacobsen GKV 1996 Greens Mower - \$8,600  
Used Ransome 6150 12' Trideck Rotary - \$12,000  
Used Land Pride 12' Tow Type Mower - \$3,500  
Used Ford 2000 Tractor - \$6,500  
Used (Like New) Cushman White Truck w/Full Cab  
& Heater  
Used Toro Workman (Like New)  
4x4 Gas w/200 Gallon Toro Sprayer - \$16,500

Add; Toro/Other Branded Equipment Available  
MTI Distributing, Inc.  
Jim Tisland

**(763) 475-2200, ext. 233**  
**(800) 362-3665, ext. 233**

## FOR SALE

Jacobsen Overseeder \$2,495  
Kubota M4700 (only 150 hrs)  
Turf Special: \$14,900

Contact: ROGER or DAN  
Olson Power Equipment  
**(651) 674-7019**

## PRE-OWNED BARGAINS!

Jake Greens King IV's  
15 to choose from:  
as low as \$900

Jake LF 100 Fairway Mowers  
6 to choose from:  
as low as \$2,900

Toro GM3 and 3000 Greens Mowers  
7 to choose from:  
as low as \$950

Toro 216 Trim Mowers  
4 to choose from:  
as low as \$1,350

Toro 335D and 450D Fairway Mowers  
6 to choose from:  
as low as \$2,995

Toro 5100 and 5300 Fairway Mowers  
4 to choose from:  
as low as \$3,995

Ransomes 350D Fairway Mowers  
4 to choose from:  
as low as \$1,500

John Deere F935 Rotary Demos  
Demo units on sale for \$10,595  
with 72" decks. These units  
have only 200 hrs. on them  
and feature a full year John Deere  
warranty. Many to choose from!  
26 hp Yanmar diesel engine

Many other items available!  
Call and let us know what you need!

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