

At Sun City Carolina Lakes, Aaron Nolan, who only has one cutting unit to mow rough, uses PGRs in the rough, which is mowed 1.5 times a week.

Color enhancement is another benefit of PGRs, especially with gibberellic acid-inhibitor materials.

"This is particularly true with trinexapac-ethyl (Primo), which often results in a darker green color of treated turf," Christians says. "As is usually the case, this response can be highly variable."

PGRs have been used as a tool to improve the overseeding of cool-season grasses into warm-season turf. The goal is to slow the growth of the warm-season grass without inhibiting the establishment of cool-season grass seedlings. With this practice, timing is critical.

"Primo tends to be one of the best PGRs for this purpose because of its foliar absorption and its reduced likelihood of inhibiting the cool-season germination," Christians says.

A critical factor when using this product is that it must be allowed to dry on the Bermudagrass tissue before overseeding takes place.

In northern regions, freeze damage can be a serious problem.

"PGRs slow growth, thicken cell sap and might provide an antifreeze-like effect," Christians says. "A study a few years ago observed enhanced freeze tolerance of annual bluegrass

treated with low rates of trinexapac-ethyl. Northern superintendents who often experience *Poa annua* loss during winter might want to experiment with this idea."

One of the factors that limits fungicide efficacy is plant growth, or when the plant contacts are mowed off soon after application. PGRs tank-mixed with fungicides show promise in extending efficacy and reducing fungicide rates needed for disease control. Some PGRs might even directly suppress dollar spot on treated turf.

"Research has shown PGRs can improve shade tolerance of certain species, particularly zoysiagrass," Christians says. "Trinexapac-ethyl has been shown to reduce clippings, prevent scalping, and might improve establishment of new sod and stimulate tillering of Kentucky bluegrass being grown for sod."

**SAVE TIME**

Labor savings is another reason why David Smith, superintendent of golf and grounds at Abbey Springs in Fontana, Wis., uses plant growth regulators. The 18-hole resort course has a maintenance staff of nine during the peak season.

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**“WITH THE SIZE OF MY STAFF,  
I’LL LOOK AT ANYTHING  
I CAN TO SAVE LABOR.”**

David Smith, superintendent of golf  
and grounds at Abbey Springs [pictured]

“We have used Primo very effectively for many years and have reduced our tee mowing by 33 percent,” Smith says. “I haven’t calculated a dollar figure because we use the time saved to enhance other aspects of the course. And, Primo is effective for five to six weeks after application. On greens, we use it as a stress conditioner.”

Smith also uses Proxy to reduce the time spent weed-eating banks and other areas that are difficult to mow. He applies the product to the bluegrass, and it’s effective for five to six weeks.

“With the size of my staff, I’ll look at anything I can to save labor,” he says. “I started using PGRs more than 20 years ago with the original formulation of Embark. Throughout the years, these products have helped me a lot and have been a big time-saver.”

#### CONSISTENT GREEN SPEEDS

At Park Hills Golf Course in Freeport, Ill., the target green speed is 9.5 feet. Superintendent David Fisher uses a combination of PGRs on the 36-hole public facility’s Penncross creeping bentgrass greens. The first two applications in spring are a mixture of Primo and Proxy to control varying percentages of *Poa annua* in greens that are 52 and 25 years old. In late spring, Fisher switches to using strictly Primo. In the summer, it’s a mixture of Primo and Cutless. Then it’s back to straight Primo during the fall. Applications are at two-week intervals.

“This program allows us to have a little higher height-of-cut and still maintain the green speed we want,” Fisher says. “We use triplex mowers and generally cut at 0.11 inch. The PGRs control growth and let us maintain our desired green speed a little longer throughout the day.”

Fisher has a program for fairways, but it’s

only implemented in the spring. Between April 15 and May 15, Fisher applies a combination of Primo and Proxy. Fairways – a mixture of Kentucky bluegrass, ryegrass and *Poa annua* – are cut at three-quarter inch.

“We do this strictly for seedhead control,” he says. “In the spring, there’s a surge of growth, and it can be messy in the fairways after we cut them. PGRs regulate the growth and make clippings more manageable.”

#### CONSISTENT CONDITIONS

Aaron Nolan, superintendent of Sun City Carolina Lakes in Lancaster, S.C., applies plant growth regulators wall-to-wall at the 18-hole public course. Primo is used extensively in July and August during the heaviest growing period for 419 Bermudagrass.

“At this property, growth regulators relieve mowing stress and give us a consistent height-of-cut,” he says. “But our biggest goal is consistent playing conditions. We don’t mow fairways every day, and without PGRs, the grass tends to get a little shaggy during the nonmowing days.”

The story is a bit different for the roughs. Because Nolan only has one cutting unit for the rough, it’s mowed 1.5 times a week as opposed to the two or three times he would prefer.

“This is a large property, and we want to provide a consistent height-of-cut,” he says. “I refer to growth regulators as ‘liquid labor.’ We don’t have a large staff, but we’re expected to deliver top conditions. These products help us achieve that.”

Again, the rationale for PGRs on greens is different. The primarily G-2 bentgrass surface is mowed daily, and it’s necessary to maintain consistent green speeds of 9.5 to 10 feet through-

out the day.

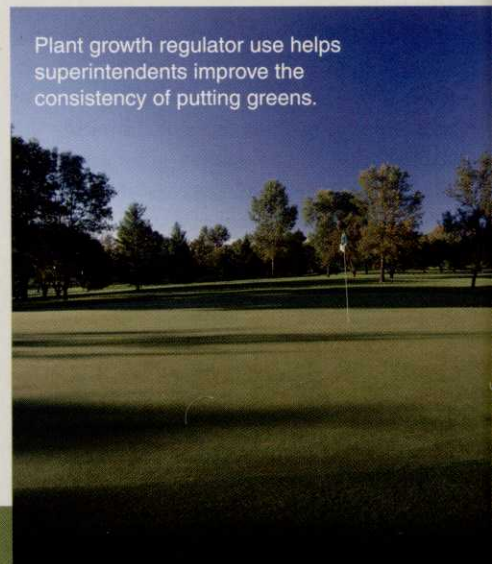
“On greens, we use a combination of Primo and Cutless,” Nolan says. “The Primo absorbs on top as a foliar product, while Cutless works in the root zone. In my experience with bentgrass greens, if there’s a 30-percent population of *Poa annua*, this combination works best to suppress *Poa* seedheads. When we aerify in spring and fall, I use Trimmit, which again is effective for *Poa annua* suppression or removal.”

So how does Nolan sell the extensive use of growth regulators to management?

“Taking a big-picture view, how important is this relatively modest expenditure when the goal is consistent playing conditions?” he says. “Through the use of PGRs, we’ve increased our consistency by 20 percent, and that speaks for itself.” **GCI**

*David Wolff is a freelance writer based in Watertown, Wis. He can be reached at [dgwolff@charter.net](mailto:dgwolff@charter.net).*

Plant growth regulator use helps superintendents improve the consistency of putting greens.



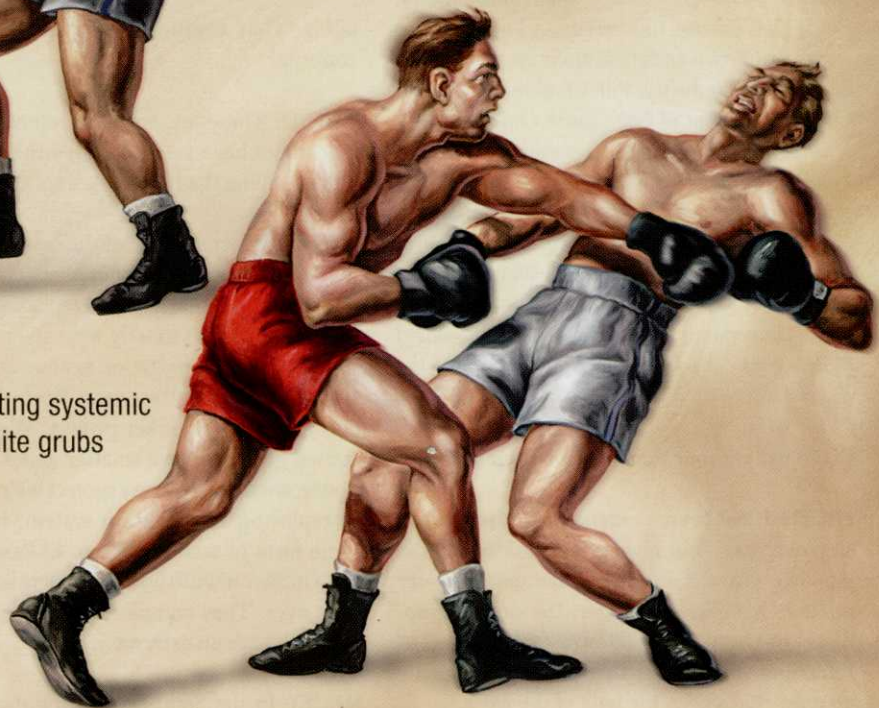
Turn to pages 76 and 78 to read about how two superintendents purchase and use plant growth regulators.

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# PROJECT PARAMETERS

Builders discuss the differences between renovation and new construction, along with the importance of grow-ins **By John Walsh**

**E**ditor's note: During this year's annual summer meeting of the Golf Course Builders Association of America, which was in Monterey, Calif., Golf Course Industry hosted a roundtable with six GCBAA members to discuss the golf course development industry. Participants were Glenn Caverly, president of Golf Course Construction in Howell, Mich.; Bob Bryant, president of Bryant Taylor Gordon Golf in Costa Mesa, Calif.; Oscar Rodriguez, vice president of Weitz Golf International in Temecula, Calif.; Klaus Ahlers, golf sales manager with Colton, Calif.-based Leemco; Wayne Massey, president of Medalist Golf in Cumming, Ga.; and Willie Slingerland, sales manager for Dallas-based Flowtronics. The following is an excerpt of the discussion.

**GCI:** What are your thoughts about renovation?

**AHLERS:** It has been – except for all the stuff we ship overseas – our biggest business during the past two years. A lot of it is because of water quality changes, the modernization of equipment, the fertilizer injector systems, as well as rebuilding bunkers, greens and tees. On many courses, that's been the bulk of the work.

**SLINGERLAND:** That's the majority of our work domestically. Internationally, it's all new construction.

**CAVERLY:** I don't believe renovation has picked

up any. We've done as much renovation work as when the big golf boom was on.

**GCI:** Is that regionally or throughout the country?

**CAVERLY:** There are no more renovations now than there have ever been. It's the only thing that's keeping the industry going.

**BRYANT:** In certain parts of the country, renovation has picked up. For example, 10 years ago, if we did a project that involved replacing an irrigation system, that's exactly what the project was – we designed an irrigation system. Sometimes, six months later or two years later, the owners decided to do a bunker project. Well, they've started getting a little smarter about planning. Today, with almost every project we're involved in replacing an irrigation system, it involves some form of reconstruction. El Paso Country Club in Sacramento was a complete blowup and start over. They completely rerouted the golf course. That's an extreme.

**MASSEY:** In the Southeast during the past two years, we've seen projects increase to 70 percent new construction and 30 percent renovation. All new construction is basically very high-end.

**RODRIGUEZ:** What I liked about renovations is that most of the time they've been budgeted, either privately funded or publicly if it's a city or county. So when you go in there, you know you're going to get paid most of the time. We don't start

until funding is in place. And it's already a running facility, so you know the chances the funds are going to be there for you are high.

**SLINGERLAND:** Plus you know what you've got to start with. There's not a lot of surprises.

**BRYANT:** Going back to the team concept, we're involved in a major renovation with a top 100 course in Southern California that has a long-term planning group. There are intelligent people involved. They're budgeting, they have the architect involved, they have the agronomist involved. I predict it's going to be a very successful project. They're going to control their costs.

**GCI:** Would you attribute that successful planning to architects' push for master plans?

**BRYANT:** That's starting to help. I'd like to think the Golf Course Builders Association also has helped with communication. In general, there's



Slingerland



Bryant

more information available to new developers than there has been during the past 10 to 15 years. There are conferences, our conference, our Web site, and obviously, the electronic age makes information more available. Sophisticated builders, not golf course builders, but developers, especially of housing, have access to the information. They just have to go find it. The architects are helping. Not all of them understand yet, but the majority of them do.

**AHLERS:** Regarding the renovation thing, many courses say, 'OK, hold on. We're going to do this next year.' It's not a money thing. Sometimes they've already acquired all the funding. They don't have a model home opening and aren't trying to get their money back from this investment and the property. They do the master plan, get budgets, think it out, and just say countless times, "Hold it, we're going to wait. We're going to do this next year because we don't want to lose the season. It's a big investment for us, and we'll be OK one more year or season.' Those are the kind of jobs ... I've never seen anything work out better. The planning's great. The people know exactly what they want. You make a couple bucks on it, too, because you don't have a lot of issues.

**GCI:** Do you treat renovation and new construction projects differently?

**RODRIGUEZ:** You have to be more versatile with your people. Even though all this planning takes place, at the end of the day when you start opening things up, who knows what's underneath.

We have a few crews that do self-performed irrigation. We should put those crews on the renovation projects. If I bring in a subcontractor, I have to go through the change-order process and documentation. If you're self-performing, you can almost ad lib about those circumstances, working with a committee or the superintendent. Sometimes you don't have time to go through those channels and just have to make it work.

**BRYANT:** It absolutely requires a different crew for irrigation. The crew who does that work needs to understand several things. One is that we have to maintain the old irrigation system. It has to remain in service, especially if we're not blowing up the entire golf course. They also need to understand how to take the sod up, get the pipe in the ground and get the sod back, so there's the least amount of disruption to those areas that aren't involved in the renovation. They also need to understand the members because many of these renovations are done with the members still playing on parts of the golf course. They need to understand the courtesy that's required for these members.

**AHLERS:** I remember years ago starting to see the dust control, then the erosion control and now the storm water management program. I remember at first I thought, 'What's with these bails of hay? Why do I need bails of hay on a golf course? I never saw that.' It must be getting bigger and more expensive all the time.

**CAVERLY:** We used to bid jobs, and those items were treated as incidentals, and now every one of those items you just mentioned has a dollar value to it. And those costs are anywhere from \$100,000 to \$1 million. Soil erosion and storm water protection alone. We used to build a golf course for \$1 million. Today, storm water management can be \$1 million.

**RODRIGUEZ:** We're working in Palm Springs, and we have what's called a PM10, and all that is grouped together. It easily could be \$2 million.

**SLINGERLAND:** In the Carolinas and certain parts of the country, they'll only let you disturb, four to 15 acres, and you have to have that grassed with 75-percent coverage before you can disturb the next four to 15 acres.

**BRYANT:** In Hawaii, it's five acres.

**AHLERS:** I thought that job in North Carolina was ridiculous at 25 acres at a time. How do you build a golf course like that? And you're saying five acres!

**BRYANT:** As with most things, there are certain rules that apply. It's not like you have to open and finish five before you move on to the other five. They're guidelines. Essentially, you're not supposed to be disturbing or involving more than five acres at a time.

**AHLERS:** And that's what this 25 was. You did 25, and you got that regressed and covered, and they sodded it.

**CAVERLY:** We're on one right now that has a 30-acre work limit. And back to driving costs, we have a lot of idle equipment. We shut down the earth-moving operation to go back and stabilize. And we have to stabilize before we go to the next section.

**AHLERS:** Weren't the irrigation guys waiting to start on the next thing?

**CAVERLY:** That's exactly what happens. I mean, we're in a typical situation where there's a timeline on the project, but nobody wants to acknowledge these things when they make that timeline. These things all drive up costs.

**GCI:** One issue seems to be exactly when a builder is finished with the work and when the responsibility shifts from the builder to the superintendent or owner.



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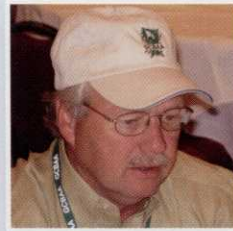


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## COURSE CONSTRUCTION



Caverly

**CAVERLY:** I'm into one right now in which the owners believe that when the golf course is ready to open it's theirs. The architect specs have always been my pet peeve. When the seed hits the ground, it's the owner's. For maintenance and watering purposes, however, they always put that line in there that says the contractor has to guarantee germination. It's difficult for us to guarantee germination when we're not in control of doing the grow-

in of the property. And if we have a superintendent that's not doing the proper grow-in, we don't get our retainage, and we have to go back and regrass. It's a big problem area. The grow-in is the biggest thing on the golf course, and it's neglected. They don't want to hire a superintendent until they have to, and we as contractors don't want to have to do the grow-in – not unless there's a line item bid for it.

**GCI:** So parameters aren't being defined clearly?

**RODRIGUEZ:** It becomes a gray area when you bring in germination. In most of what I go through, the gray area is a little different because it's really not when to seed or when sod goes down, but when you're irrigate it automatically. Most contracts are worded that if you use irrigation system to water an area, then the superintendent or owner takes over. The problem with that is that most people interpret that as an entire, complete golf hole. And how many times do we have to start here and end up on the same golf hole to complete the 18? We go with where we can. It could be environmental. It could be all kinds of things that are beyond our control that we have to piece out this golf course, and we can't turn it over hole by hole.

Now that's where the gray area is, but something that makes a golf course a lot better is the quality of the grow-in superintendent. I could name a few: Virgil Robinson, Earl Sanders, Scott Lewis.

There are some people in the industry that take what we give them and can't wait to get rid of us and say, 'We love you guys, but get out of here. You're done, let me take it.' And they take it to the next level and do an excellent job. Then you get the rookie that keeps bringing you back, and now you're arguing about whether it's erosion, overwatering or whatever the reason might be, but that golf course doesn't get to the next level. It gets even worse sometimes.



Rodriguez

**CAVERLY:** We've tried to work with Michigan State University for years, and maybe right there's where the problem starts – the superintendents go through the turf program, and they believe because they have a degree in turfgrass management, they know how to do a grow-in. A grow-in is a completely different animal than maintaining existing turf. That education needs to be emphasized.

**SLINGERLAND:** Grow-in takes experience. It's nothing you can learn in a classroom. It's nothing you can learn until after you've done it. And it's not just once.

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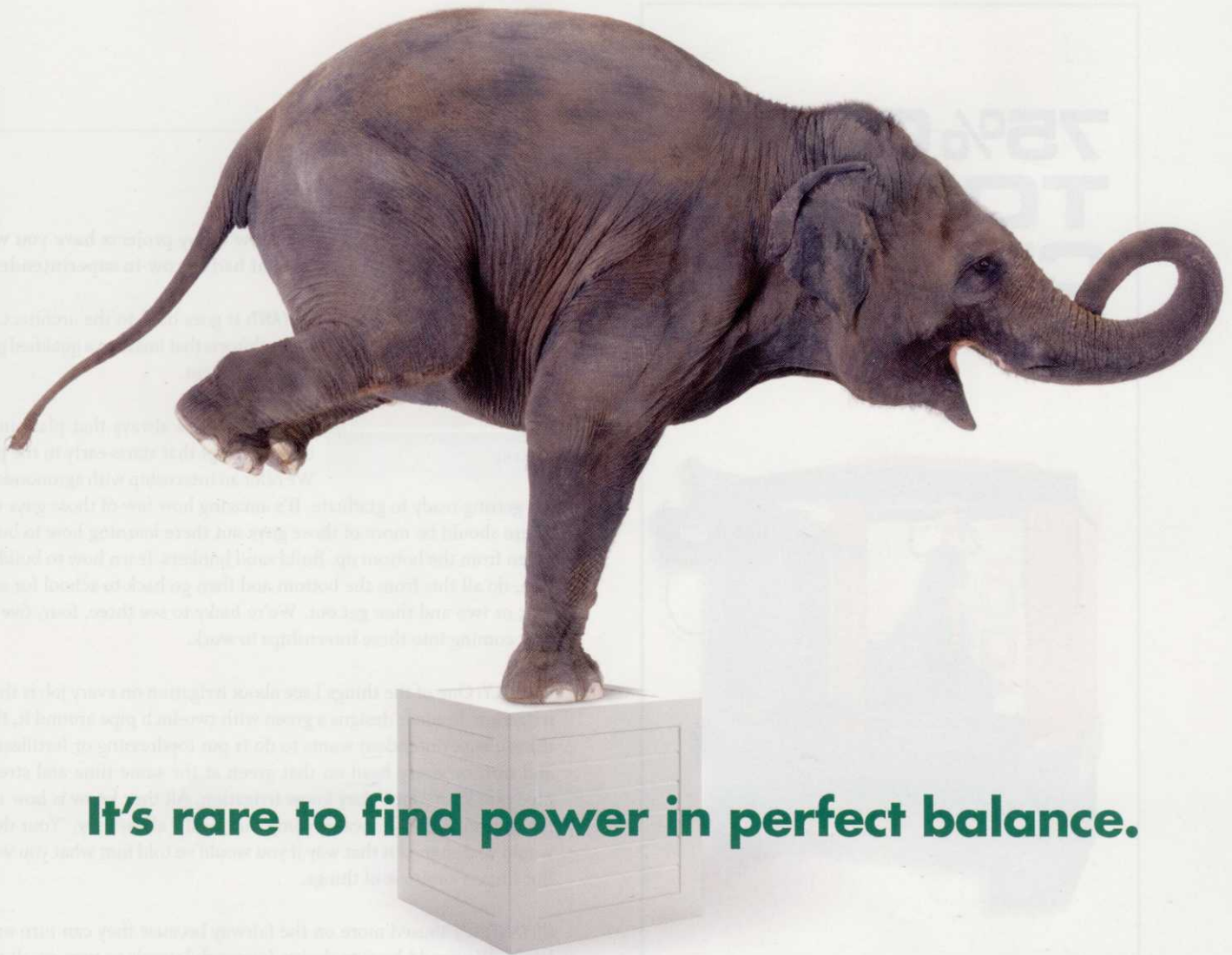
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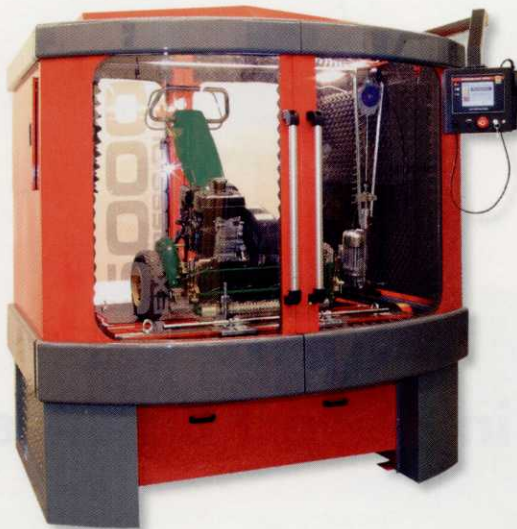
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## COURSE CONSTRUCTION



Masey

**GCI:** How many projects have you worked on that had a grow-in superintendent?

**BRYANT:** It goes back to the architect. There are architects that insist on a qualified grow-in superintendent.

**MASSEY:** There's always that planning, that team concept that starts early in the project. We offer an internship with agronomists who

are getting ready to graduate. It's amazing how few of those guys we see. There should be more of those guys out there learning how to build the green from the bottom up. Build sand bunkers, learn how to build irrigation, do all this from the bottom and then go back to school for another year or two and then get out. We're lucky to see three, four, five guys a year coming into these internships to work.

**CAVERLY:** One of the things I see about irrigation on every job is that if an irrigation designer designs a green with two-inch pipe around it, the first thing a superintendent wants to do is put topdressing or fertilizer down and turn on every head on that green at the same time and stress that pipe out. They think they know irrigation. All they know is how to push the button and make water come out. And I always say, 'Your designer would've designed it that way if you would've told him what you wanted.' But there's a misuse of things.

**BRYANT:** It's abused more on the fairway because they can turn on more heads. We would have to design four-inch laterals to turn on all the water they want to turn on. And they don't need to do that. With a proper grow-in process, they can schedule irrigation on the satellite without a central or with a central if it's available. They can schedule an irrigation without violating the hydraulics of the system. It just gets back to having an educated person do that.

Years ago, I was asked what was the most challenging problem facing irrigation in the future, and I said one of them was the education of the superintendents. Of all of the programs I've seen and all of the textbooks I've ever seen published that are used in major schools, none of them are current. They all go back to the late '60s and '70s in terms of irrigation technology. That's frustrating, and I don't know why the major manufacturers haven't made more effort to reach out to these universities to provide more education.

**SLINGERLAND:** I've been asked to talk at Texas Tech and Texas A&M, and I bet they spend less than 2 percent of the entire degree time talking about irrigation. And nowadays, it's one of the largest line items in a bid. It's nothing to see a \$2- to \$4-million dollar irrigation system these days.

**BRYANT:** It's not just to water the grass. An irrigation system is a long-term maintenance tool for the health of the grass and soil.

**SLINGERLAND:** It's maintenance of that system, too. They don't even teach that. Obviously, I'm in the pump business. I tell people that when I walk into some pump houses and pump stations that are a year old, they look like they've been there for years. **GCI**



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# how sweet it is

**I**n Michigan's Upper Peninsula, golfers might find themselves examining their concept of normal.

In Harris, Mich., the Hannahville Band of the Potawatomi Nation is building a new golf course as part of the "natural evolution" of its 22-year-old Island Resort & Casino. That's normal for casino resorts nowadays, but that might be where the comparisons end – designwise, constructionwise and financewise.

Through a fortune willed to the tribe by an outsider, Sweetgrass Golf Club is being built without borrowing any money, according to Tony Mancilla, council chairman of the Hannahville Indian Community. As important as that is, and as much as Mancilla promises they will hold the line on the cost of a round of golf, it's only one of the project's facets that sets it apart from the norm.

Normally, an architect won't identify any one of his creations as his best. But, Paul Albanese of Plymouth, Mich., says this is by far the best golf course he has designed.

Typically, courses in the U.P. consist of about 150 acres and are heavily forested, commanding golfers to be precise with their drives. But Sweetgrass consists of 320 acres of mostly open farm fields and mildly undulating hills, with only a handful of holes meandering through trees. Because of this, Albanese was able to create a layout that makes it difficult to lose balls when playing.

Normally, views of lakes or mountains outside a course are a drawing card. At Sweetgrass, the best views are the features the development team created, such as an island green and the waterfalls between the ninth and 18th greens, Albanese says.

Typically, 100-year-old, one-car iron bridges dot the highways of Michigan. At Sweetgrass, five of them will carry golf cars to the island green or over wetlands and creeks.

At Sweetgrass, native lore is written on scorecards and stretches out before the golfer on every hole, such as the fifth, which tells the legend of the serpent and the great flood, and the 18th, which depicts the story of the seven grandfathers.

Generally, those in the industry can make three educated guesses to determine the type of irrigation system installed on a new golf course. At Sweetgrass, the first-ever John Deere-manufactured Aurora Decoder System was installed.

Normally, if a golf facility contains a continuous flame, it's in the grill. At Sweetgrass, a flame is kept burning constantly in a firepot on the 10th tee box to mark the fact that the Hannahville Band of the Potawatomi Nation are known as keepers of the fire.

The golf course, which has been grassed, is expected to open in July.

#### CONTINUED GROWTH

Even though the golf course was a natural evolu-

tion for the resort, the tribe conducted a market study for the \$4-million to \$5-million project, Mancilla says.

"We did it for the bank and so the tribal council would feel comfortable," he says. "One of the studies said a golf course would be a big draw if done well, and that's what we intended. In every one of the market studies for previous expansions, we've always exceeded expectations."

The estate was left to the tribe by Zoe Bra-zowski, who had visited the reservation when she was a young girl in the 1930s, so the Hannahville Band was able to self-finance the golf course, Mancilla says. Since the casino opened in a pole barn in 1985, the tribe has managed the entire operation, overseeing construction of a small casino with 40 slot machines and 28 guestrooms in 1991; the addition of a convention center, 113 guestrooms and 860 slots in 1997; and the addition of 225 guestrooms and another 600 slots this year. Currently, the resort features 330 guestrooms, 1,500 slots and a convention center that holds about 400 people.

The tribe was confident it could build the golf course on its own, Mancilla says. The tribe used its own construction company moved the bulk of the dirt for the golf course, saving half the cost of such a job.

#### ROCK WORK

Aside from the heavy earth-moving, Grassi Enterprises of Howell, Mich., handled the construc-