

Use the services of the USGA Green Section and/or the services of a professional agronomist at least once per year.

To maintain control of changes that may occur in the soil, water, plant protectants, fertilizers, new technologies, and new practices, it is imperative to administer soil, water and tissue samples be at least once a year. The services of the USGA Green Section and the services of a professional agronomist should also be used at least once per year.

The USGA Green Section agronomist will keep you abreast of cutting-edge technologies and practices and provide advice on golf course-related improvements.

Soil, water and tissue samples provide control of plant nutritional needs, soil-related imbalances, microbial populations and/or water-related problems. Some universities throughout the country can perform these tests, or they can be administered by using the services of an independent lab.

If more exacting, step-by-step procedures are desired, so as to provide many additional benefits and provide a means of reducing the use of pesticides, chemical fertilizers, labor and water and decreasing maintenance costs, consider a comprehensive soil analysis. This test should be performed by a professional agronomist (a consultant) to help administer, analyze and implement needed corrections.

### **Dispelling myths about sand-based greens**

Four myths concerning sand greens must be dispelled. The incorrect assumption is that percolation rates, compaction and oxygen availability in the sand medium should not be of concern. The presumption is that a sand green is like a beanbag; it will not compact and there

will always be pore space for air and water to move through. In reality, nothing can be further from the truth. Sand greens, if given enough time, will plug up and develop problems with the three things mentioned above. Leachates from fertilizers, pesticides, bicarbonates from irrigation or rainwater, organic residue from biological decomposition, dust and/or air impurities all contribute to this situation. Sand is very temperature-sensitive, and its buffering capacity is very weak, making the entire situation more reactive and complex. It is important to remember that a 10-degree increase in temperature will double the rate of reaction.

Sand greens, without a doubt, are the best type of greens available today. It is important to realize, however, that they are different. Comparing them to push-up greens is like comparing apples and oranges. They are

*(continued on page 36)*

*Sand greens, without a doubt, are the best type of greens available today. It is important to realize, however, that they are different. Comparing them to push-up greens is like comparing apples and oranges. They are different and must be managed accordingly.*

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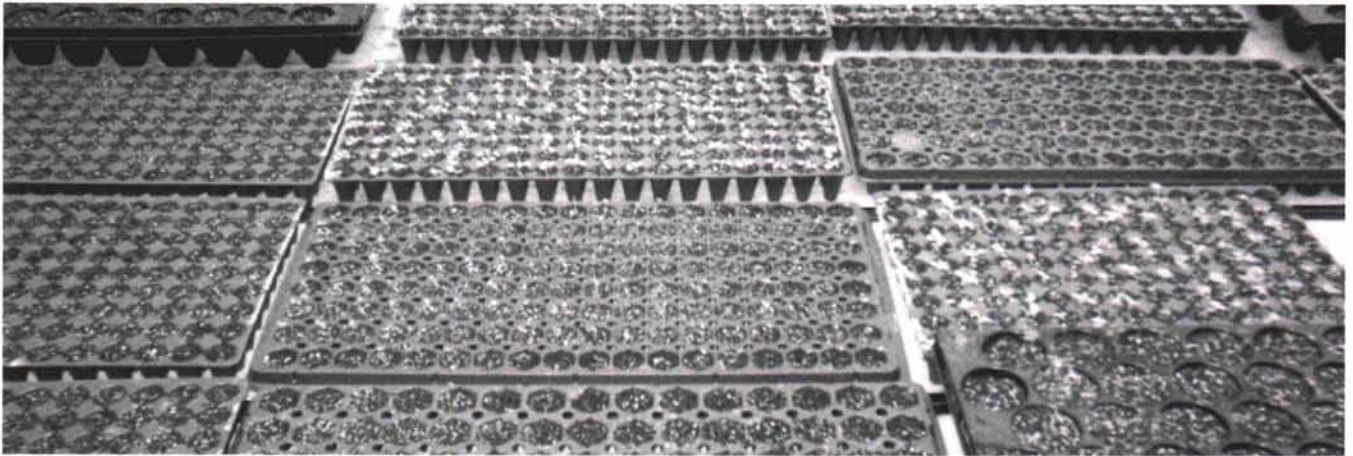
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## ASK THE "EXPERT"

**Marc Van Camp**

Manager, Friendship Park Conservatory  
Des Plaines, IL

# Try Some Homegrown



*The Friendship Park Conservatory is located at 395 Algonquin Road in Des Plaines, IL. The facility is comprised of an indoor atrium (along the lines of the Garfield Park Conservatory in Chicago, but on a smaller scale; classrooms for recreational programming and rental space are available to the public). We do a lot of wedding business and it is a beautiful and tranquil setting for any gathering.*

*Consider that for a start-up investment of a couple hundred dollars and with as little as 50 square feet of shop space, you can start up to 500 plants for use on your course.*

When you enter our property, you are greeted with a series of gardens connected by meandering pathways. You will see a rose garden, herb garden and an aquatic garden among other thematic presentations. Inside the building, soft music and sculpture enhance the genteel atmosphere we seek to convey.

The heart and soul of the facility is our state-of-the-art 10,000-square-foot greenhouse, where we produce 99% of the plant material we display. As an agency of the Mount Prospect Park District, we are responsible for the outdoor park gardens situated throughout the district and we provide container plant material for district offices and recreation centers.

Golf course superintendents are certainly familiar with the job that plant culture is. A lot of commonality exists between our respective businesses, in that when the greenhouse is 110 degrees, delays and excuses don't cut the mustard. You have to act quickly or your crop is toast and yesterday's successes don't mean a thing.

*(continued on page 24)*

Flowers add beauty to almost any setting and an effective presentation can truly enhance your golf course. I have seen area golf courses with floral beds that rival those at the Art Institute. Some of you really know your beans when it comes to flowers.

### This article isn't for you.

You other guys—you know who you are—instead of heading down to the local nursery for a couple flats of annuals, do you know that you can get a much bigger bang for your buck if you grow your own?

Consider that for a start-up investment of a couple hundred dollars and with as little as 50 square feet of shop space, you can start up to 500 plants for use on your course. You can make up the capital cost in one year so next time you only spend money on seed, potting soil and the time it takes you to set up your light table.

### Materials: a checklist

Get a sheet of 3/4" plywood and enough 2" by 4" lumber to frame it out. Set the legs high enough so you (or the retired person you hire to do this) doesn't have to do a lot of bending while working. Drill a couple of holes in the table so water can drain. Set up a framework from which lights can be suspended. I've found that thin wall electrical conduit works well for this purpose. Four to six double-bulb fluorescent light fixtures (4" bulb) are hung from sash chain and spaced evenly over the table. Configure this so the lights can be raised or lowered as needed. Each light fixture should be equipped with one cool-white and one warm-white bulb. If space is a problem, hinge the framework so the entire assembly can be folded up and stored when you're not using it. Additional framing set midway from the floor to the table surface and covered with hardware

cloth makes a handy space to store pots and other material. This also makes the table sturdier.

Now you're going to need some cold frames; I'll explain their purpose a little later. A cold frame is rectangular in shape (2' or 3' by 4' or 5' works well), fitted with a Plexiglas lid hinged on one side. The rear side should be higher than the front; use 2" by 10" lumber for the back and 2" by 4" for the front. Cut the sides so the lid is supported on all four sides. When you are done, the cold frame should look like a cheesy display case. Each cold frame will hold about (50) 4" pots or four or five flats, so make enough to hold your crop. Feel free to use whatever material you have lying around. For example, old storm windows make great covers. You can use concrete blocks to elevate the cold frame to the proper height; again, use whatever you've got. Find a sheltered spot outside next to a building on a sunny south-facing wall and set them there.

Get some seedling trays, flats or 4" plastic pots (check your catalogues—they're pretty cheap), some potting soil (metromix) and some packages of seeds. For

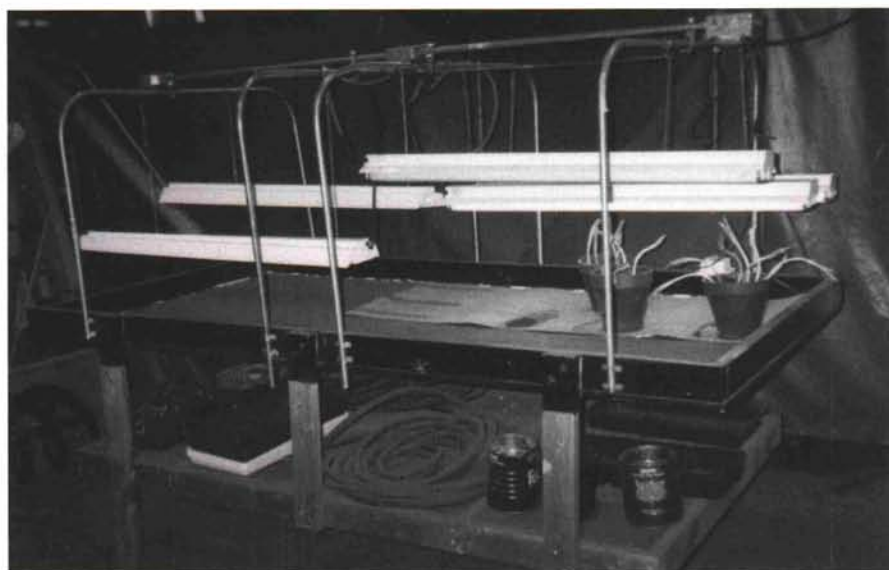
starters, try something easy like marigolds, petunias or salvia (you can try some more exotic varieties next time) and have at it.

### Timing tips

Set up your light table and sow your seeds in early March, turn the lights on and keep them on, keep the seeds moist—you know what to do.

Ten days to two weeks after germination, take the seedlings that look good and transplant them to your flats or 4" pots. When it looks like the weather is going to stay above freezing at night, move the flats or pots to your cold frames, but don't take your table down yet; you might need it if the weather gets bad. The cold frames keep the heat in and the plants gradually harden; again, keep them moist, use a little foliar fertilizer (10-10-10) every second or third watering and wait.

Old-timers put several inches of manure on the bottom of the cold frames and nestle the flats into it. The manure helps to insulate the interior and actually provides some heat as it decomposes. If it gets unseasonably warm (like this year), prop the




Light table.



Side view of FPC cold frames with lid propped open for air circulation on warm days.

*Bringing plant material in from seed is pretty light work, but it can be time-consuming. It's perfect for a retired person looking for some golf privileges; you know better than I do how to work that angle.*

frame covers open so the crop doesn't cook. If the weather turns really cold, less than 30 degrees for several days, you're going to need to bring the crop back inside. Don't worry—they'll survive just fine for several days. If we're really unlucky weather-wise and we have a long cold snap, rotate them on your light table or cut your losses and thin your crop down to a manageable size.

do your entire golf course. If you try this procedure and you like the results, I guarantee the bed that gets your plants will be your favorite bed that year. Give us a call at 847-298-3500 and our master gardeners will be happy to advise you and answer any questions you may have. 

When you feel comfortable that it is time to plant your annuals (mid to late May), plant them in your golf course beds with a little granular 10-10-10 tilled into the soil and you're done. Right! Now comes the weeding and watering etc., but you've got staff for that. Which brings up the staffing issue . . . I've been told that March and April can be a pretty busy time for golf course superintendents. Bringing plant material in from seed is pretty light work, but it can be time-consuming. It's perfect for a retired person looking for some golf privileges; you know better than I do how to work that angle.

Don't bite off more than you can chew. Start with one light table and see how you like it. Unless you put together a greenhouse, you're never going to be able to produce enough plants to



Author Marc Van Camp watering plant material.

Ignorance Breeds Fear . . .

# What You Need to Know About GMOs (Genetically Modified Organisms)

*You, the superintendent, will soon be faced with new decisions concerning what grasses you select to use. Turfgrass breeding using conventional techniques has, for many years, been the only avenue for genetically improving grasses. Looming just ahead for our industry is the use of modern technology for moving genes into plants. Organisms that have genes added to their constitution this way are referred to as “genetically modified.” With the advent of new technologies come questions as to their value, safety, usefulness, acceptance and impact. Genetically modified organisms (GMOs) are already being used in agriculture and other microbial-based industries. They have stirred up a lot of thought and controversy. As turf professionals, you need to understand this science and make decisions based on your knowledge. This short article will get you thinking, so read on!*

*There are many natural means of changing DNA. In fact, one organism can naturally change the DNA of another organism. For example, viruses have been changing plants and animals for as long as both have been cohabiting the earth.*

The basic blueprint of all living things, past, present and future, is deoxyribonucleic acid (DNA). The diversity of living organisms on the earth is beyond the imagination of any human. With this diversity comes a tremendous natural resistance to biological change. However, over the millions of years organisms have been on the earth, natural (non-artifactual) changes have slowly shaped and altered the types of organisms that survive on the earth today. All of these changes have a common thread: their DNA was altered. Changes in DNA have been occurring for millions of years.

There are many natural means of changing DNA. In fact, one organism can naturally change the DNA of another organism. For example, viruses have been changing plants and animals for as long as both have been cohabiting the earth. Man is one more vehicle that can effect changes in DNA, but his methods may extend beyond nature by forcing changes to take place that might not otherwise occur. For example, breeding a plant from Australia with a

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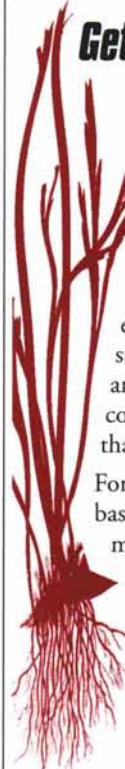
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plant from Nova Scotia might result in a “new” plant that, without man’s action, would not have developed. We humans have been doing this for hundreds of years.

When the term “genetically modified organism” (GMO) is used, it refers to this very situation, but the methods and degree of change are increasing. Before you jump to an unfounded conclusion (negative or positive), you need to understand more. In fact, all of us, and especially scientists, need to understand more, but we will never know everything. The mysteries of DNA and how it has, with its very simple structure, created the unfathomable diversity of life on earth, are slowly being unraveled. The salvation of the earth’s ecology can be appreciated from understanding its diversity. It is my opinion, after more than 20 years of studying the biology of the earth, that no single factor, not even man, will dominate life on earth. The rule in our ecosystem is that for every action there is a reaction. If man puts foreign DNA into organisms that would not normally acquire such DNA, you can count on nature reacting in a controlling way. You cannot argue with this fact: it will happen. People may or might not like the reaction, but it will occur. Because our earth’s ecosystem is so diverse and large, it is impossible for anyone, scientists included, to fully predict the impact any single event will have on the whole of the ecosystem. However, it can be predicted that the reaction will generally not be catastrophic or long-lasting. Take, for example, the release of genetically-modified Texas male-sterile corn. This was a big mistake, but I bet you do not even remember it. Through

breeding, which has gone on for hundreds of years, man created a situation that allowed a pathogen to dramatically reduce the yield of corn. Nature reacted to man’s change, and 20 years later you and I are no worse off and probably more knowledgeable.

Genetically modified organisms, including turfgrasses, could offer man many advantages for managing our environment. My understanding and knowledge of the earth’s biology indicates to me that GMOs will not have a large or extended impact on the earth. Along with the many potential benefits GMOs offer, there are also going to be new challenges. These are the reactions of nature to man’s actions, and they cannot be fully predicted. However, through science we can minimize and manage these potential challenges. To remain ignorant and not seek understanding through science will only culture fear.

The stewardship of the earth should not be left in the hands of any single group, regardless of their motives. Capitalists and doomsayers are equally bad for the earth when it comes to interpreting the value of GMOs. Collectively, all people should rally around the pursuit of knowledge, upon which the best decisions for stewardship should be based. Genetically modified turfgrasses offer many exciting possibilities for the industry, but they also will raise many challenges that need to be addressed.

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#### **How should superintendents approach GMOs?**

1. Open your eyes and ears, and seek knowledge from objective sources.
2. Support research efforts that seek facts about GMOs.
3. Ask questions of experts and policy-makers: get involved!
4. Make decisions on what you understand, not on what you fear!





GCSAA ELECTIONS 2000:

# A Report From Your Voting Delegates

*The GCSAA annual meeting and elections took place on February 19 in New Orleans in conjunction with the conference and show. No proposed by-laws changes were on the ballot, so the only voting occurred in the election of officers and directors.*

*GCSAA has appointed MAGCS President Emeritus Robert Maibusch, CGCS, MG, to its Board of Directors. Bob will serve the one-year term mentioned in this article. Read more in the May issue of On Course. Congratulations, Bob, on meriting this honor!*

By unanimous vote, Scott Woodhead, CGCS, was elected president. Also by unanimous vote, Tommy Witt, CGCS, was elected vice president.

In the race for the secretary/treasurer office, John Maddern, CGCS, was nominated from the floor to run against Mike Wallace, CGCS, after the resignation of candidate Sam Snyder, CGCS, for health reasons. The result of the secretary/treasurer race balloting was: Michael Wallace, CGCS, 5,016 (winner); John Maddern, CGCS, 2,835.

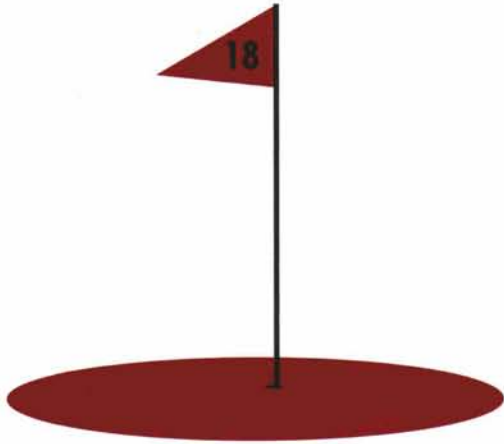
The MAGCS supported Maddern with a complete slate of our available votes, totaling 270.

In the election for director positions, (two) two-year terms and two one-year appointments were available. In addition to the previously nominated candidates, Ricky Heine, CGCS, ran from the floor. The results of this race were: Ken Mangum, CGCS, 5,606 (two-year term); Jon Maddern, CGCS, 5,311 (two-year term); Tim O'Neill, CGCS, 3,032 (one-year appointment); Jim Nicol, CGCS, 1,237; and Ricky Heine, CGCS, 498.

Mangum and Maddern were reelected to two-year terms, and President Woodhead announced that O'Neill would fill one of the one-year appointments, with another one-year appointment being made in the near future following consultation with the Board of Directors.

Following the annual meeting, a town hall meeting related to the Professional Development Initiative (PDI), which is tentatively scheduled to be voted on in 2001, took place. Good feedback and professional discussion on both sides of the issue ensued, and all of our members are encouraged to educate themselves on the PDI so that we can make an informed decision next year on the future of the association.





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