(continued from page 30)

36-hole facility on the West Coast. And the 12th through the 15th holes on the Panther are going to be four of the best back-to-back holes in Florida."

Ramar Group Companies, Inc., the developer of the Plantation is well known on Florida's West Coast for its outstanding achievements in the development of environmentally sensitive land. "We had to do a tree survey on the Panther course," says Fatica. "Every palm, oak, and pine tree above a three-inch caliper had to be shown on a map. Then we had to go down each fairway and note each tree that we were going to take out. I replanted a lot of trees from the middle of fairways to the sides."

There's also a natural slough into which all the water at the Plantation drains. While building the Panther course, 650 feet of the slough had to be bridged. "We had an environmentalist come out and check to be sure no sensitive plants would be disturbed."

The result is a beautiful view of the slough's natural habitat. "It's a Ramar trademark," says McEachran. "We really utilize the wilderness areas."

While nature may have provided the Plantation with some beautiful settings, it hasn't always been kind to Fatica.

During construction of the Panther, before sprigging was complete, eight inches of rain fell in a seven-day period. I'd just ride up and down the sidewalk and glance at it. The washouts were unbelievable, but at least I know which way the water is going to go and I know my drainage is good."

Other than the rain, Fatica seems to be enjoying his involvement with construction. "I designed all the cart paths. I'd ride around on a cart, the way I would if I were golfing, and I'd stick flags in the ground as markers. Then the construction guys would dut them out and pour concrete."

Fatica also had some input into the design of the new course. "It was nice because Ron Garl had enough confidence in me to know that I wouldn't do anything that would be bad for the course. So far, he's approved all my suggestions."

Still, all the work adds up to long hours for Fatica. His day begins at 6 A.M. and doesn't end until after 5 P.M. "First I go over to the Panther and see what's being done and which contractors are coming in. I get them squared away and then I take a quick spin around the Bobcat and see what's going on there."

"It's easy to do a good job for the members and guests when you work with dedicated people like Curt Conrad (assistant on the Bobcat) and Chip Copeman (assistant on the Panther). I work with my crew and I always try to see their side. If somebody needs a day off for a personal reason, it can be arranged. This golf course will be here tomorrow so it's not that critical that everybody be here every second; as long as you have a few good people that you can trust."

"Once a week, Curt and I will get out on the Bobcat and

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The new Panther Golf Course under construction at Plantation.

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ride from tee to green. We'll bring a tape recorder and I'll list what needs to be done. Then I take the tape home, write it out, and give it to Curt. He checks the things off as he gets them done."

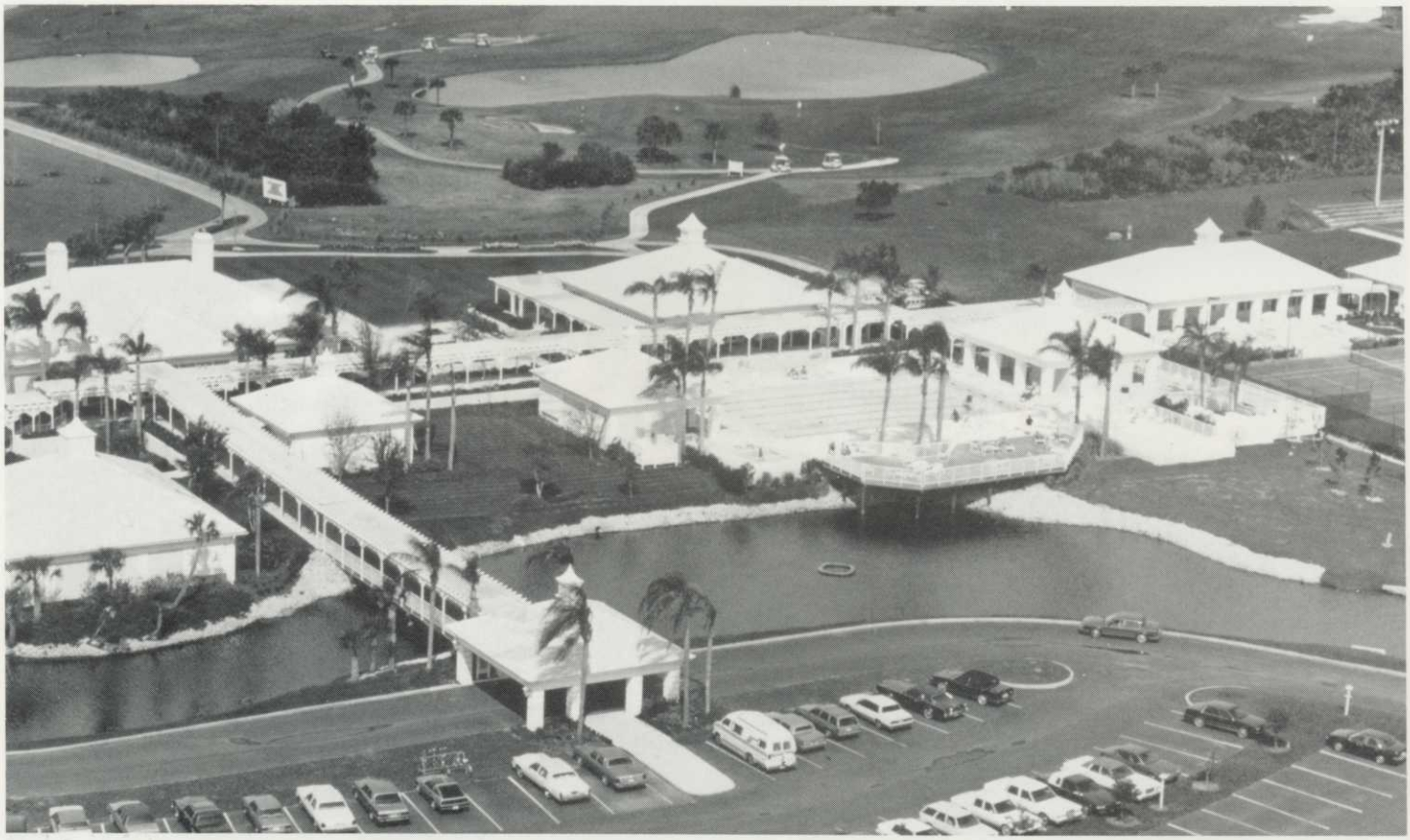
"I like the convenience," says Fatica about living at the Plantation, something that a lot of superintendents might feel reluctant about doing. "I am able to just run out and get things done. In the evening, Janet (his wife) and I will take the kids and ride around on a cart. I'll turn on the water and if I see anything wrong, I'll make a mental note of it and get it fixed the next morning."

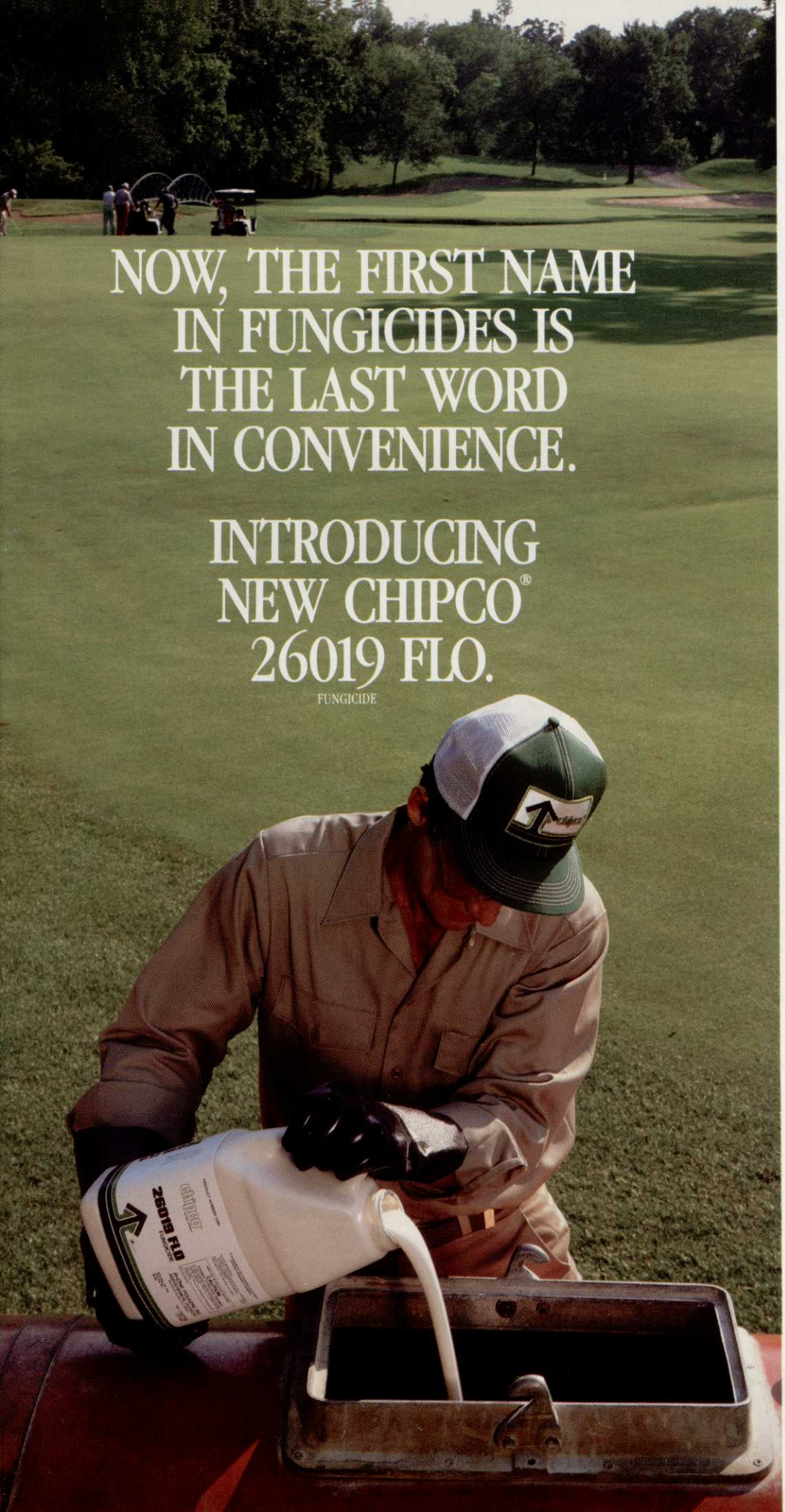
Speaking of children, Fatica's oldest son, Pat, designed the Bobcat and Panther logos for the flags at the Plantation. At age 14, he is an excellent artist.

Every afternoon around four, after the crew has finished, Fatica heads over to the grill. And on Wednesday, when the men play, he has lunch with them. These are the times when he works at establishing a good rapport with his members. It is their chance to ask questions, give suggestions, or make complaints.

"I guess I'm just a glutton for punishment," he laughs, and then adds in a more serious tone, "Once in a while, somebody will get mad. But it's rare. I try to stay on top of everything because if the members and guests don't like it here, they can always go up the road."

That sentiment sums up Fatica's philosophy at the Plantation. And he really utilizes his abilities in golf and communication to make it work. ■





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Florida Green REPEATS

Editors of eight outstanding newsletters will be recognized during the Golf Course Superintendents Association of America's (GCSAA) 58th Annual International Golf Course Conference and Show in Phoenix, January 26 - February 2, 1987.

The 1986 winners of the annual GCSAA Chapter Newslerrer Editors Contest were selected by a panel of four highly qualified judges. The winners were chosen from newsletters published by 48 eligible, affiliated chapters.

Within each of three chapter size categories, one newsletter was selected as the best overall. Newsletters were evaluated on overall excellence, appropriate design, editorial judgment and content, scope and quality of writing, and presentation. The size categories: A—fewer than 30 members, B - 30 to 70 members, and C - more than 70 members.

In addition to the three overall awards, judges selected five newsletters for special recognition awards regardless of chapter size. The special categories: best flag design, best cover, best original editorial content, best format and readibility, and most improved.

The 1986 winners are:

Category A:	Best Flag:
Turf Talk New Hampshire GCSA Editor, Barrie Robertson	Northern Ohio Turf Northern Ohio GCSA Editor, Alan F. Clark, CGCS
Category B:	Best Editorial Content:
Turf Talk Wy-Mont GCSA Editor, Jane R. Barry	Hole Notes Minnesota GCSA Warren J. Rebholz
Category C:	Best Format:
The Grass Roots Wisconsin GCSA Editor, Monroe S. Miller	The Ballmark Central Illinois GCSA Michael Vogr
Best Cover	Most Improved:
The Florida Green Florida GCSA Editor, Dan Jones, CGCS	The Supervisory Link Vermont GCSA Editor, Michael O'Connor, CGCS

By Donald E. Kooyer, C.G.C.S.
Willow Lakes Golf Club

Technical Representatives

If you have ever had to write equipment specifications for a government bid contract or had to convince a greens committee board that you need a piece of equipment, you can sure use all the technical information you can obtain.

When submitting equipment acquisitions to a regulated agency such as the military, school board, college or park system in your area, you will have to submit bid forms from different distributors. You, as the superintendent of your facility, know what piece of equipment is needed to perform the job. You have worked with this type of equipment for some time and are comfortable with its operation. You could tell everyone at your facility what piece of equipment you want. But when writing the exact specifications for a certain unit or units for more than one facility, your technical representative is available and willing to assist you. Manufacturers and their representatives such as Jacobsen and Toro have people available to assist you not only in technical data but also to assist you with any presentations you may have to make.

Not only do we need this type of support from our area technical representatives at certain times of the year, we certainly need their support throughout the year.

When I first came to the North Florida area, I had to find out equipment and equipment parts availability. Coming across the United States I have found two equipment companies that are synonomous with the turf industry, Jacobsen Textron and Minnesota Toro. They have not only excellent equipment available but also have the technical representatives to back them up. There are many more excellent turf equipment companies in the North Florida area as well as chemical irrigation and seed companies, etc. The manufacturers of the turf supply industry can put out the best possible products available, but if they don't have the technical representatives with the knowledge and the willingness to give the support needed by the turf manager, he will look elsewhere.

It sure is assuring to know that there are technical representatives like Bob Ward at Zaun Equipment and Paul Hamrick at Tresca Industries who will work hard in your area to keep you informed of the technical changes not only at the end of the year but will also work with you on a daily basis. These men are the working arms of the equipment distributors in our area. They have the training and technical knowledge to support the superintendent when he needs it. The technical representative in our area knows that when we purchase a product we need to be backed up by the entire company that we are doing business with. When there is a problem that needs to be taken care of we need to be able to talk to the right people. When contacting the representative that sold us the product, we need to know that he will back up his products with warranties, parts and service.

When a new piece of equipment fails because of a manufacturers defect, we need to be able to contact the representative who sold us the piece of equipment. We need him to be our mediator between the purchaser and the manufacturer, not only to help with all needed records of purchases, delivery date, condition upon delivery, or warranties, but also to ensure both parties of equitable settlement. During this period of waiting for a new piece of equipment we need something to do the job with. Again we go to the rep — he will find something, if possible.

How about when you are looking for a used piece of equipment to fill in your fleet? The representative who calls on you in your area also covers a lot of territory that we can't get to. I ask Paul and Bob to keep an eye out for me and they will ultimately come up with what I need.

Remember when you are out in your shop talking about the performance of a certain piece of equipment that the answers you give the representative will be taken back to his desk and evaluated, to help make any weak points known to the distributor. When these weak points are evaluated throughout his company and we see them turned into strong points at the next field day or equipment show, we know that the representative and his company are listening. When we ask a representative to look into a new alternative to an old problem we expect some kind of answer or solution. The next time we are at our national annual golf course superintendents meeting we can see and hear many answers.

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As a member of the Board of Directors and the Secretary/ Treasurer of the North Florida Golf Course Superintendnts Chapter, I know that we need and expect the support of the commerical companies and their representatives. The representatives come and join our meetings and always bring industry information that all the superintendents can use. The representatives at our meetings travel a wide area and bring us useful information from this area.

I hope that the representatives that the superintendents need and count on know that we appreciate their knowledge and expertise in their fields. ■

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MASTER GARDENERS Till the Soil of Knowledge

By: Catherine C. Elverston

Gainesville Last year alone, 1,100 volunteers in 33 Florida counties donated more than 25,000 work hours giving some 62,000 pieces of free advice on plant care, with a reported savings to consumers of more than $400,000.

The Master Gardeners met in Gainesville recently to receive their reward for all that volunteering from the Cooperative Extension Service of the University of Florida's Institute of Food and Agricultural Sciences (IFAS).

During the three days of courses,"They named practically every plant or tree and diagnosed just about every plant problem at hand," said Kathleen Delate, master gardener state coordinator at IFAS.

"The MG program was started in 1979 in three Florida counties to help Extension agents deal with increasing numbers of horticulture questions and plant problems of urban population," Delate said. Community volunteers are trained in intensive weeklong horticulture classes in return for committing 50-100 hours of service to the county MG program.

Workshops on 22 subjects — including landscape design, plant propagation, and the basics of plant disease — emphasized hands-on experience for the volunteers who are often called upon to assist in diagnosing homeowners' plant problems.

IFAS Extension Dean Jim App assisted in presenting the annual awards to over 70 Master Gardeners who have dedicated more than 300 volunteer hours.

Award winning projects included city beautification, a community plant seminar series, and creative educational participation at a regional Youth Fair.

The conference closed with tours to seven areas of horticultural interest, including Kanapaha Botanical Gardens, Paynes Prairie, and IFAS horticulturist Benny Yjia's Exotic Gardens.

"Master Gardeners are involved in a variety of county service projects," Delate said, "including demonstration and community gardens at Extension offices, convalescent homes, schools, and neighborhoods. They offer plant clinics at many public locations and diagnose plant problems via telephone, walk-ins, home visits, and computers at the Extension offices, to name just a few."

Any person interested in learning more about plants, their problems and how to solve them, should check with their county Cooperative Extension office to receive an application to participate in the MG program.

SOIL TESTING: Techniques and Application

by John Wildmon
Lake City Community College
Lake City, Florida

Soil testing is probably the most misused and misunderstood tool of modern agricultural technology. Soil tests were originally developed to predict yield responses of specific agronomic crops to elements applied on a specific soil type. That is all they were ever intended to do and from a fertility standpoint that is all they are capable of doing. Unless the results from a particular soil extraction technique are correlated experimentally with field responses of a particular crop being grown on a specific soil series the results are just numbers and nothing more. To predict crop responses to applied fertilizer using soil tests results when these relationships have not been established is guessing, pure and simple. In otherwords soil tests have to be calibrated for each crop on each soil type. Recommending specific quantities of elements based on soil testing for a soil and crop which have not been calibrated to that particular soil testing procedure is a very common misuse of soil testing. This is not calibrated to a given situation. It can still yield valuable information and can be used to make some inferences about how a soil should be managed and fertilized.

There are 3 basic parts to any soil test, the sample, laboratory analysis, and interpretation of the lab data. Optimum results from a management program based on soil testing depends on all three steps. The soil sample must be representative. The lab analysis must be consistent and minimize errors. The interpretation must be done by someone with experience who is aware of the inherent limitations of soil testing.

Most good turf managers know how to take a representative soil sample but since this is probably the single largest source of error in most situations the procedure bears repeating. Keep in mind that the lab is going to use from about 1/4 ounce to 8 ounces of soil depending on the procedure being done and you intend to make inferences from that sample for a soil that weighs about 2 million pounds per acre furrow slice. This size is equivalent to about 10 to 230 parts per billion of the total soil mass per acre. You can see why the sample had better be a representative one. To obtain a representative soil sample you must take samples at random all over the area of interest and from the root zone of the crop being grown. For turf the effective rooting depth is usually considered to be 6". Soil samples should be taken from a depth of 2 to 5 inches below the soil line. Areas that are not representative of the general status of the soil, such as localized wet spots or soil near building foundations or road beds, should be avoided. A different sample should be submitted for every area with a different soil type or different management scheme. For golf courses a separate sample should be done for each green, tee, and fairway even if soil types are similar. Never sample immediately after applying fertilizer, wait at least one week. Once a composite sample for an area is obtained all thatch should be removed and the sample should be screened to remove roots, rocks and other large particles. A piece of ordinary fiberglass house screen will do the trick. The sample should then be thoroughly mixed. Samples should be air dried unless they can be analyzed immediately.

The second step in a soil test is the lab analysis. Soil pH is usually determined using a 1:1 by weight soil water mix. The mixture is stirred, allowed to settle and the pH of the supernatant liquid is determined with a pH meter. This procedure is reliable and the results are fairly easy to interpret. Determination of "available" nutrients usually consist of adding a liquid "extractant" to a given volume of soil. The extractant is a chemical solution containing a relatively large concentration of a given cation,typically ammonium or hydrogen. The cation in the extractant drives other exchangeable cations off the soil colloid and into the surrounding solution. The solution is then separated from the soil by filtration and is analyzed to determine the quantity of calcium, magnesium, potassium, and sodium it contains. Phosphorus is determined in a similar manner. From the results of the extraction procedure the lab attempts to predict what will be available to the crop over the course of a growing season or year. The lab procedures for any given extractant are standardized and give reasonably consistent, reproducable results if the procedure is done correctly. However, this is obviously a very artificial system which only

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vaguely resembles what actually happens in the soil over time. Furthermore numbers obtained from one extractant will be different from results using a different extractant. Thus the need arises for calibrating the numbers obtained in the lab with actual field responses.

The research correlating response of turfgrass and many other ornamentals with soil test results has not been done for most situations. A half dozen subsamples of the same soil sample sent to six different soil testing labs typically will, result in six different recommendations. These recommendations may be 5 to 10 times higher from smallest to largest. The reason for the discrepancies is not poor lab analysis in most cases but rather a difference in interpretation of what the results mean. Labs which use the same extractant usually report similar results but very often make different recommendation. Who is right and who is wrong is anybody's guess. Very often soil test labs will report results with quantities of individual elements rated from very low to very high. A rating in the low range implies the crop will respond to applications of that element. A medium rating means the element is probably present in adequate amounts while a rating in the high range means that more than ample quantities are present and the crop should not respond to applications of that element. However, this is not always the case. Reasearch at the University of Florida on St. Augustinegrass showed no differences in rooting, yield, and turf quality for potassium rates ranging from ½ pound to 2 pounds per 1000 sq. ft. per month on plots which tested low in potassium. Studies at Texas A&M using 2, 4, 6 and 8 pounds of potassium per acre, year demonstrated increased wear tolerance of bentgrass with increasing amounts of potassium on a soil which tested high in potassium.

Differences in recommendations often occur even for crops and soils which have been calibrated to soil test results. One study on corn grown in Nebraska on four different soil types followed recommendations from 5 different soil testing labs. They found no difference in yield between the lowest recommendation, for nitrogen and potassium only, and the highest recommendation for large applications of virtually every fertilizer element. Again the reason is differences in interpretation. Many labs interpret their data using concepts, such as cation saturation ratios, which aren't valid.

I've spent a lot of ink telling you what a soil test cannot do. By now if you are still reading you are probably wondering what a soil test can do for you. A soil test can give some valuable information such as soil pH which is very important and may need to be adjusted for optimum crop performance. It can be used to monitor changes in soluble salt levels in the soil when saline irrigation is being used. Soil test results can be used in conjunction with visible deficiency symptoms and tissue analysis when trying to diagnose problems. Soil texture, C.E.C., and percent organic matter are also reported by most soil testing labs. This informatioan can be used when deciding how much, and how often, fertilizer and water should be applied. Course textured soils with low CEC's should be applied. Course textured soils with low CEC's should be fertilized with light frequent applications while finer textured soils with higher CEC's can hold more fertilizer and can be fertilized less frequently. Some general inferences can also be made in terms of watering. Course textured soils such as sands hold less available water and must be watered more freuently. Medium textured soils such as loams hold most available water and require less frequent watering while fine textured soils such as clays have available water contents similar to sands. Soil C.E.C. and water holding capacity will also increase with increasing organic matter content.

As far as recommending specific quantities of elements based on soil test results, the research simply has not been done for turfgrass on Florida soils. The first and most important rule is to fertilize, and use the proper ratio of N-P-K. For turf this ration should be 3-1-2- or 4-1-2. Changing ratios or deleting one or more of these elements based on soil test results could be a dubious practice. Elements other than N, P, and K, particularly iron and sulfur, can be limiting factors to turfgrass growth in Florida. Probably the best way to determine need for other elements is simply to apply them individually to a small area and look for a response. Keep in mind that things other than yield, such as stress tolerance and turf quality, are important parameters.

To put it simply, soil testing is no panacea but rather a small piece of the puzzle. Even well calibrated soil test results must be evaluated in conjunction with other environmental conditions. Light, temperature, diseases,insects, soil moisture, soil oxygen, and numerous other factors will influence responses in specific instances. The best test is still the discerning eye of an experienced agronomist and the best fertilizer for any plant is the grower's shadow.

REFERENCES

Beard, J. B. 1986. Advances in Turfgrass Culture. Seminar, Seminole County Agricultural Center.

Donahue, R.L., R. W. Miller, and J. C. Shickluna. 1983. Soils: An Introduction to Soils and Plant Growth. Prentice-Hall, Inc. Englewood Cliffs, N. J.

Kidder, G. 1982. Toward more realistic public expections from soil testing. Proceeding of the L.T. Kurtz Colloquium on Science in a Changing Agriculture, pp. 118-125.

Olsen, R.A., K.D. Frank, P.H. Grabouski, and G.W. Rehm. 1982. Soil testing philosophies: consequences of varying recommendations. Crops and soils. October, pp 15-18.

Watching Your Tees & Q's

By: Bud White
Southeastern Director
USGA Green Section

Some Interesting Findings About Putting Green Construction and Materials

Even though not originally intended for research purposes, the development of a new sampling technique by Agri-Systems of Texas Inc. has revealed some very interesting and important findings. The extremely simple technique involves the hammering into the soil profile a section of 3 inch ID PVC pipe to the sub-base of an existing putting green. The pipe is then removed and the ends are tightly packed with newspapers and then sealed so that an intact core can be shipped to the lab for analysis.

Upon arriving at the lab, the length of the core is measured and the sub-soil material is removed from the base. Then a retaining screen is placed in the bottom and the core is then saturated. This procedure allows for a very accurate infiltration test of a putting green. Once the infiltration test is completed, the pipe is split long ways down each side and a physical history along with an analysis of the materials within is made.

The information derived from these procedures is then used to make recommendations and provide solutions to problems. Agri-Systems is also currently developing regional recommendations to further fine tune construction and management practices of putting greens. Some of the factors taken into consideration are: mean temperatures, rainfall, wind velocity, surface contours and other special problems. Thus, recommendations can be made for specific areas, and to the conditions into which the greens will have to be maintained. In a letter dated December 1, 1986, to Mr. William H. Bengeyfield, Executive Director of the USGA Green Section, Judith Gockel of Agri-Systems of Texas Inc. discussed some of their findings from analysis of the cores submitted during 1986. The following are some of her observations.

First and foremost, in the construction of the USGA "spec" type greens, the intermediate or choker layer CANNOT safely be eliminated. The particle size differences between the seedbed mix and the openings of the gravel blanket are too great for the mix to stay suspended in open air. To prevent the seedbed mix from migrating into the gravel blanket, it is necessary to have in place an intermediate layer that is 5 to 7 times greater in particle size than the seedbed mix, and also 5 to 7 times less than the gravel blanket. Even before the green is planted, the gravel blanket will become contaminated if the intermediate level is eliminated, and this results in water infiltration rates being reduced to its lowest common denominator. Thus, even before the green is brought into play, problems begin to arise.

Next, it has been found that in the construction of sand-peat type greens, the use of Michigan-type or bog peats, (and also muck type materials would be included here) will definitely cause problems. These "black" peats possess a very fine particle size and these materials will very rapidly migrate to form a layer within the sand of the seed bed mix. This layer results in reduced infiltration and excessive moisture retention and is a major contributor to the "black layer" phenomenon. When a fine sand is used for the seedbed mix, the high capillary porosity of the sand plus the water retention capacity of the peat causes a seedbed too wet for proper turfgrass growth and developement.

Agri-Systems is recommending the use of sphagnum peatmosses, (or composted rice hulls on the Gulf Coast and in the Mississippi Valley), as the source of organic material in the seedbed mix. There is always a potential for problems associated with any organic additive and this recommendation is based on mechanical considerations. Based on the above information, one would tend to think that a pure sand type of construction would eliminate a layering problem. As it turns out, a reverse and just as detrimental result occurs when pure sand is used. To compensate for the lack of organic matter in the seedbed mix, the root systems of the turf generates large quantities of its own debris, which migrates through the pore spaces of the sand. The resulting organic material tends to accumulate 2 to 3 inches below the soil surface and this creates a shallow, perched water table. Two of the worst cases of reduced infiltration were observed with all sand greens.

It has been my experience observing putting greens all over, that if problems are being experienced, 70% to 80% of the time the problem is due to the use of improper materials or construction techniques. While there are few guarantees in nature, with adherence to tried and true methods along with thorough testing of the available materials, can one be reasonably assured of success. This is true not only for the construction of new putting greens but also for the topdressing and renovation of existing greens. ■