# Renovation: Adventure Into Anxiety

By DENNIS M. CREWS
Central Florida Turf Inc.

It is hard to understand how one word can strike fear into the hearts of Golf Course Superintendents.

The word Renovation is not that devastating when used in a sentence.

But the act of Renovation, taking place on the superintendent's well manicured golf course can bring out even the deepest, darkest emotions and characteristics.

But in my opinion the mojority of anxiety can be lifted through proper preplanning.

The smoothest running job normally obtains the best results excluding one item: weather. The weather is something that we can not control, but should be figured into the planning.

It is really difficult to give someone an accurate price quote on a new 18 hole golf course irrigation installation in less than 24 hours. But it does happen.

Consideration of time should be given to anyone who is asked to quote prices on any job no matter how large or small. Then the next step is to start the planning procedure between the contractor and the club. The Superintendent should always be included in all phases of negotiations for he is the club's resident authority on the golf course. The final results will be a success only if Architect, Superintendent, Consultant, Club Representative and Contractor work harmoniously on the project.

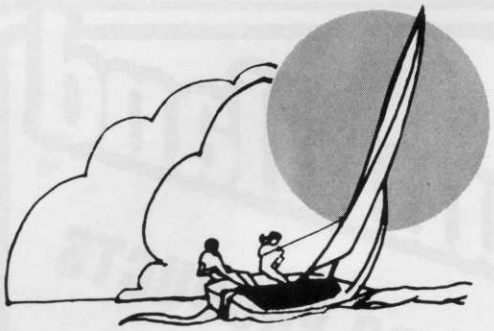
Everyone involved should be aware of the scope of the work and the results that are expected.

Pressures from club members to have new planting "grown in" can and do cause some unnecessary problems for all parties involved. As much information as possible regarding changes in greens, traps, fairways, tees etc . . . should be brought to the attention of club members to answer any questions in their minds.

Renovation is a field in which expertise is required to achieve a suitable finished product. But similar to most other things in life today you cannot expect a Cadillac result on a moped expenditure.

This brings us back to planning again. The Superintendent should do as much up-front work as possible to obtain a clear understanding of all aspects of the project.

Renovation is a normal, necessary procedure in the golf course industry. The Adventure into Anxiety can be smoothed considerably only if you plan in advance.■



# Suncoast Sails

MICHAEL MEEHAN
Sunrise Country Club

# Manual Versus Automatic Irrigation

In this day of modern technology and advanced equipment, there are still superintendents burdened with the problem of manual irrigation systems. After discussing this topic with several superintendents who have manual systems, some contrasting viewpoints were found with most being disadvantages while some advantages were found.

Let's cover some of the disadvantages first. Employee turnover was at the top of everyones list. Due to the hours and type of work involved, employees become disinterested quickly and move on. (There are exceptions, of course, as Hugh Bebout at Sarabay Country Club has had the same night waterman for 18 years.) Finding good responsible employees is also a concern. Some courses employ one man who waters six days a week while others use two or three and divide the week up between them. Average salary ranges from $4.00 per hour to $6.00 per hour.

The inability to syringe presents unique maintenance problems, especially during overseeding. Most manual systems are not charged when not in use and need either heads running or lake valves open to relieve pressure. This makes it difficult to syringe without inconveniencing the golfer and disrupting play.

Availability of parts and accessories is becoming scarce as most older manual systems become obsolete. With the demand decreasing, most suppliers are not stocking the necessary parts and equipment.

*Par 3 190.*

The demand for better playing conditions presents problems unique to courses implementing manual irrigation. Since most manual systems have single row head placement the coverage is very limited. Good timing and proper scheduling are a must for fertilizing, aerifications, weed control, etc., in order to get the desired results. Some clubs try to time maintenance practices with periods of regular rainfall to insure success of the programs they have set up for the growing season. With the weather becoming more and more unpredictable here in Florida, this practice is sometimes a big gamble.

*Par 5 dog leg left gulf in background.*

Maintenance and cost of repairs of a manual system are two of the few real advantages to manual irrigation. Since the system is attended when in use, this cuts down on the worry of heads sticking on or not coming on at all. Most quick couplers are much shallower than automatic pop-ups. This makes for ease of replacement and maintenance. The cost of replacing a quick coupler is about $25. compared to $70. and up for most automatic heads. Line breaks are also less frequent because the systems are only charged when heads are out and there is an outlet for pressure.

Some of the superintendents polled felt with water becoming a precious commodity, they might have an advantage

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**when water usage is cut back or put on a limited basis. The reasons given were that they could run one head at a time on a green or tee where with most automatic systems, two or three heads come on at a time.**

***Par 3 185 trap surrounds green.***

**As you can see, the disadvantages outweight the advantages quite heavily. All the superintendents polled had the same conclusion. The sooner they can convert to an automatic system the better!! All the courses except for one had plans in the near future of converting over to a total automatic system.**

**Next time you are out adjusting your time clocks, give some thought to your less fortunate colleagues who don't share the same luxury!■**

# Watching Your Tees & Q's

By STEVE BATTEN AND BUD WHITE
United States Golf Association-Green Section
Southeastern Region

# *Florida Mucks & Peats*

Organic soils which contain peat and muck are common to all coastal regions in the Southeast from Texas to North Carolina. Fibrous peats formed from decomposed vegetation are common to the cooler regions of North America such as Canada, but in Florida, the warm humid climate has helped to form one of the largest accumulation of well decomposed organic soils in the world. These Florida organic soils range from well decomposed black muck to less oxidized red peats. Both are common to the water flowing regions of central Florida.

The red fibrous peats are common in north central regions north of Okeechobee. The black muck soils can be found in large deposits in the lower water storage areas of the Everglades from Lake Okeechobee south to the tip of the Florida Everglades west of Ft. Lauderdale and Miami. The texture can vary from a fine well oxidized muck to peaty mucks, mucky peats and fibrous peats. The peats most commonly mined east of Tampa and La Belle, Florida are peaty mucks used as solid amendments for agriculture.

Muck is a localized term that is used to refer to the black or dark brown organic soil formed from the oxidation of marsh grasses and other vegetation. The oxidation of the marsh vegetation is referred to as Trophiphacation.

Muck can absorb up to 33 percent water by weight, so they can have some advantage in agriculture by helping to store soil nutrients such as nitrogen. However, on golf courses this water storage capacity has cost thousands of dollars annually in golf car rental revenue by closing a course after a rainy period. The ability of muck to hold water similar to a sponge makes muck fairways difficult to drain.

Often muck layers as deep as 3-5 feet below a fairway will cause a wet soil condition even if the topsoil is fine sand. Muck should therefore be removed prior to construction or mixed into the sand to form a mixture that is dominant in sand to organic matter.

Of course most Florida golf course superintendents are aware of algae and disease problems associated with wet greens soil mixtures that have a large amount of muck. The largest concern by most turfgrass managers however is what's below the greens soil mixture. If solid muck is below, then a subsurface tiled drainage system should definitely be considered prior to construction. Also all muck should be removed, if possible, away from the actual green site to prevent future water retension problems.

A layer of muck on the surface does have its place. If used on birms and non irrigated areas, the nitrogen and water holding characteristics of these soils can be taken advantage of. Often better quality turf and fewer nematode problems are observed on birms in roughs with a muck cap over a sand subbase. This is where a few dollars and a little care taken during golf course construction can pay big dividends in reducing future maintenance costs.

Common sense management of these slightly acid organic soils will help to produce good quality turf. Since these soils are lacking calcium and magnesium, dolomite will provide an excellent liming material. Be sure to keep up on steady applications of phosphorus and potassium to encourage turfgrass root development. When applying micronutrients, concentrate on zinc and copper because these two are commonly deficient in muck soils. When faced with growing turfgrass on muck soils, the best thing we as turf managers can do is to turn off the irrigation and let the golf cars roll.■

# Growth Of Municipal Golf Courses

BY ALAN WEITZEL

In 1931, when the National Golf Foundation started keeping records, there were 5,691 golf facilities in the United States; of these only 543 or 9.5% were municipal facilities. Over the next 30 years the growth of golf in the United States was rather slow. By 1960, the number of golf facilites in the United States had only increased by 12% with 6,385 golf facilities being recorded. Municipal golf courses however showed substantial gains with a 65% increase in golf facilities. In 1960, municipal golf courses represented 14% of the total golf facilities in the United States. The decade 1960 to 1970 is generally regarded as the period of greatest growth for golf. During this period of time, the total golf facilities in the United States increased by 37%. Municipal golf facilities experienced a similar record setting growth with a 48% increase in golf facilities. By 1980, the growth in golf facilities started tapering off. Only 1,817 new golf facilities were opened, 26% being municipal golf courses.

Today, according to the National Golf Foundation, there are 12,197 golf facilites in the United States of these, 15% are municipal facilities. There are municipal golf courses in every state of the Union, except for Vermont. The top 5 states are California with 138, Texas 123, Illinois 117, New York 99, and Ohio 70. Florida is ranked 9th with 59 facilities.

Now that we have looked at the National trend, lets look at the State of Florida. In 1946, when the National Golf Foundation first started breaking courses down by states, Florida had only 100 golf facilities of which 23 were classified as municipal. By 1960, Florida had only 31 municipal golf facilities, an increase of 35%. The nation had experienced only a 21% increase in municipal golf courses; however, the State of Florida had experienced a 75% increase in total golf facilities while the national growth was only 32%.

During the boom years of the 60's, Florida added 211 more golf facilities of which 10 were municipal. The growth rate of total golf facilities in Florida grew by 120%, exceeding the national growth rate of 37%. During the 1970's when the national growth rate had slowed to 18%, Florida still experienced boom times with a growth rate of 57% in total golf facilities. Municipal golf courses had a 44% growth rate which was by far the largest increase in Florida. The national growth rate of municipal golf courses was also fairly high with a 36% increase in facilities.

How do we account for this rapid growth in municipal golf courses in Florida, as well as the rest of the nation, in the last 13 years? I can only surmise what I have seen in Florida in the last 10 years. Where you have golf courses closely linked to real estate projects, you have an ideal situation for growth in municipal golf courses. For example, a developer owns a large tract of land which he plans to develop into a planned community. He usually will build many of the amenities such as the golf course first to attract potential home buyers or builders. At some point in time, the project is either sucessful or fails. If the project is unsuccessful, the developer will obviously try to sell the golf course, and in comes the local government to bail the developer out. The other course of action is the developer who is successful and completely sells out the project, now wants to move on, but still has a golf course tying him to the project. He will usually try to get the project's homeowners to buy the course and turn it private. If this does not work, he will try to sell the course on the open market. Often a municipality will buy the course to preserve green space. In rare occassions the developer, due to restrictive covenants on the property, may be forced to donate the course to local government in exchange for tax write offs.

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But what about the future growth of municipal golf facilities, with taxpayers becoming increasingly concerned about taxes and government spending, will growth continue? In Florida, with more and more retired people moving here each year, small towns are quickly becoming cities. Despite the tax consequences, these newly emerging cities want to provide their citizens with as good, if not better, facilities than where they came from. This aides in the growth of the cities by attracting new people as well as industry to the community. As cities become large, there are increasing environmental concerns, such as preserving natural habitats. A golf course becomes an ideal solution by providing green space, and at the same time if efficiently operated, provides revenue to the city. Finally, there is the human factor that affects the growth of municipal golf courses no matter how large the city. As long as you have government officials who like to play golf, you will probably always have a continued growth of municipal golf facilities.■

## Ransomes Expands Into Florida

Responding to the requirements of the growing market, Ransomes, Inc. has established a wholly owned Distributorhip, Ransomes Florida, Inc., to address the commercial lawnmower market in Florida. Heading a very experienced and qualified staff will be Lou Oxnevad, a Florida Golf Course Superintendent for the past 16 years. Lou will serve as General Manager for the West Palm Beach based operation.

Ransomes Florida, Inc. will address the needs of the golf course and municipal market offering the wide range of commercial rotary and reel mowers manufactured by Ransomes, Inc. and Ransomes Sim and Jeffries.■

## Now, You Can Control The Weather

"We can send a man to the moon and back, but we cannot do anything about the weather." That phrase used to be the case, but now there is something that you can do about it. You cannot control mother nature, but you can work with her. With the advent of cable TV and super stations such as the National Weather Channel, it is possible in some regions to tell what is going on with the weather and you can feel like a meteorologist.

Such is the case at Boca Greens, where I have been blessed to be in a region where Cable TV is accessible to my office. Via the local cable network, I have access to the National Weather Channel, a station which observes the weather, on a national basis, 24 hours a day. If local storms exist, a segment during the color radar program will reveal: where the rain is falling, they will observe the direction of movement, discuss the cloud tops to reveal the intensity and advise on weather bulletins should severe weather be imminent.

If this is not enough, sometimes your local cable network will be hooked into the U.S. Weather Bureau Radar System, such as in my case. I have a direct hook-up to the Miami Radar with a sweep of a 100 mile radius. I can observe from the Bahamas, to the Keys, to Fort Meyers, to Vero and anywhere else in between. I can actually sit in my office and predict when it might rain in Boca. By observing the movement of a front, I often have observed fronts to intensify, discipate, or even become stationary.

An important item to consider, if you actually pursue cable, is to buy a color TV. At first my boss said "why not buy just a black & white" - however the color of radar denotes its intensity, so a color TV is a must! A small unit can be purchased for approximately $200. I can absorb that cost a hundred times over by a reduction in the cost of effective chemical applications, the knowledge of when to keep the crew on payroll, or to concede to a rain day and send the crew home.

Quite often a maintenance building complex is located in a remote corner of a project. If this is the case, then consider an installation into a more accessible cable area such as the clubhouse. A cable TV with color would be a hit in the lounge or the locker rooms and if severe weather should occur, the channel can always be changed to the radar weather channel.

I must admit, I am so impressed with the luxury of this management tool, I have become spoiled. To predict the weather in South Florida is nearly impossible. I pity our local meterologist. They are forced to predict the unpredictable.

Obviously, there is very little that I can do about the weather, but I can be made aware of what is going or within my world. Any by the way, there is one big benefit to such a convenience, "I can always catch a good movie during my lunch break."■

# Peanut Butter, Parsley, Pepper & Other Carcinogens

BY BRUCE N. AMES

The trace of the carcinogen ethylene dibromide (EDB) now allowed in food is insignificant compared with the level and risk of many cancer-causing agents found in every meal, most of which are natural and traditional. These carcinogens come from four main sources.

1. Nature's pesticides. Plants synthesize toxic chemicals in large amounts to defend against insects and other predators. Plants in the human diet are not exception. The variety of these chemicals is enormous and new ones are being discovered constantly. However, little information is available about the toxicology of most of the natural plant toxins in our diet, despite the large doses to which we are exposed. Many, if not most, of these plant toxins may be "new" to humans in the sense that the human diet has changed drastically through human history. By comparison, our knowledge of the toxicological effects of new man-made pesticides is extensive, even as general exposure is exceedingly low.

Recent laboratory studies have uncovered an extraordinary variety of natural mutagens and carcinogens in edible plants. A few of these natural carcinogens are: the main flavor ingredient mustard and horseradish, chemicals in black pepper, hydrazines found in extremely large amounts in edible mushrooms, compounds present in some herbal teas, and others present in celery, parsnips and parsley. The amount of nature's pesticides we are ingesting is at least 10,000 times the level of man-made pesticide. Nature's pesticides, in fact, are found in levels of parts per hundred or parts per thousand, while man-made pesticides are present at levels of parts per million or parts per billion. The man-made pesticide residues currently allowed in our diet don't represent, in my opinon, any significant cancer hazard to the public.

2. Mold carcinogens. Molds make a great variety of mutagens and carcinogens. Some of them, such as aflatoxin, are among the most potent ever discovered. These carcinogens are found in peanut butter, corn products, apple juice and many other foods. For example, aflatoxin is allowed in peanut butter at a level of 15 parts per billion. Aflatoxin is about 1,000 times more potent as a carcinogen in rats than EDB. Why make a big fuss about tiny traces of EDB, when the risk from eating the average peanut butter sandwich comes out as more than eating a rare highly contaminated muffin? (The risk from eating a peanut butter sandwich is so low I don't think twice about eating one.)

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# Bahiagrass

(paspalum notatum)
by Steve Batten

Bahiagrass is the only sod forming turf that can be grown in Florida without irrigation. Its excellent drough tolerance is due to a deep root system and the ability to go into a prolong dormancy. Therefore, it has found a place on golf courses in roughs where turf density is not as critical a factor as the fairway playing surfaces.

A prolific viable seed producer, bahiagrass can reproduce rapidly during warm humid conditions. It can also encroach onto bermudagrass fairways from stolons that grow laterally 1.5 feet per year. When a stolon is observed, the top or terminal end will be shiny, round, and purple in color. The terminal end will also be bulbous where sheaths come down into the stem. Since iron deficieny is common to bahiagrass, it will often have a light yellow green color in the spring.

Common post emergence controls include applications of MSMA in bermudagrass turf. At present, an experimental herbicide, Oust, is being evaluated for post emergence control of bahiagrass in bermudagrass at several southern universities. (Illustration from TURF MANAGEMENT FOR GOLF COURSES, Fall 1982, by James Beard, published by Burgess Publishing Co., Minneapolis, Minn., illustrated by Steve Batten)

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3. When we cook our food we make mutagens and carcinogens, since all brunt and browned material contains them. The burnt and browned material we ingest each day from frying our hamburgers, browning our muffins or roasting our coffee is even more than that inhaled each day by a two-pack-a-day smoker. Both of these sources are also very much greater than the burnt material we inhale from air pollution. It should be emphasized, however, that though there are known carcinogens made by heating protein and cooking our food, we don't yet know the risks, while we do know accurately the enormous risks from smoking.

4. In studies on humans, high fat has been associated with colon and breast cancer and heart disease. Experiments with animals also have pointed to high fat in the diet as being associated with cancer. Though these studies aren't definitive, the National Academy of Sciences Committee on Diet, Nutrition and Cancer suggested that it might be prudent to cut down on fat as well as to drink alcohol in moderation. A high intake of alcohol also has been associated with cancer in a number of studies on humans.

There are other risks arising as a consequence of scaring the public unnecessarily. There is roughly a one-in-a-million risk of death from a car accident in driving a distance of 60 miles. I suspect that the risks to the public are greater if everyone starts driving to the supermarket to return their muffins.

It is also possible that the public health could be endangered by *banning* the use of ethylene dibromide as a fumigant. If we do not use fumigants on grains, there will be much more insect infestation and mold contamination, and the cancer risk from the powerful mold carcinogens may be much greater than the risk from EDB residues. The alternative fumigants are mostly untested for cancer. They could be flamable, toxic or cause cancer.

The most dangerous item available in the supermarket, of course, is not the muffins with EDB residues, the black pepper, the celery, the mustard or the peanut butter. It is cigarettes. Cigarettes are causing 30% of the cancer in the U.S. and 25% of the heart disease; they are known (not hypothesized) to cause cancer in humans. The most sensible action that states can take to protect public health is to encourage reduced smoking (such as by taxing cigarettes). Even a small lowering of cigarette consumption would reduce cancer enormously; it would cut the risk more than would any amount of action taken on the EDB residues.

I don't mean to imply that large amounts of EDB might not be dangerous to humans. As pesticides go, it is a potent carcinogen in rodents. The new standards set for EDB are useful and overdue and should keep industry from getting sloppy. The Ruckelshaus standards seem pretty reasonable while EDB is being phased out.

On the other hand, the risk to workers using EDB could be significant. The government's air standards until

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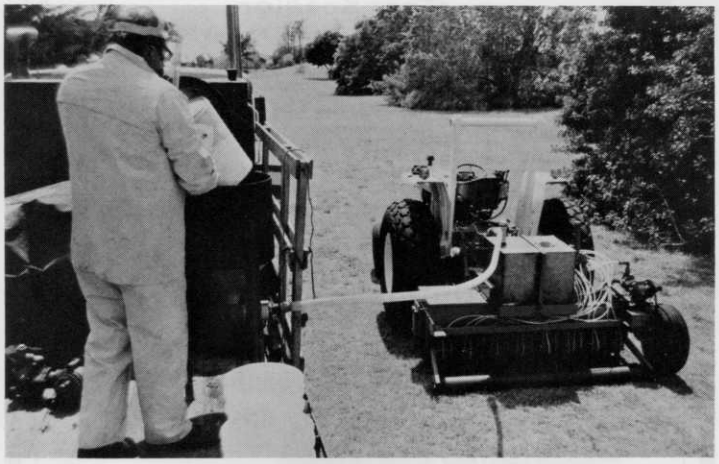
recently were such that workers were allowed to breathe in an amount of EDB roughly equivalent to eating a million ounces of bread a day with EDB residues of 30 parts per billion (the new Ruckelshaus standard for bread). Two studies of workers who were breathing in close to this amount of EDB for decades showed no increase in cancer. But because of the limitations of these studies, I and others fought to get California to lower the allowable level for workers by more than 100-fold. Our experience with asbestos and radium has taught us we can't ignore occupational carcinogenic hazards.

Humans are ingesting, and have always ingested, large amounts of many natural chemicals that might cause cancer. It is among those chemicals, not the traces of EDB allowed in our diets, where most scientists believe we will find the main environmental causes to the common human cancers.

*Mr. Ames is chairman of the Department of Biochemistry at the University of California at Berkley. This article is adapted from his September 1983 article in Science magazine, "Dietary Carcinogens and Anticarcinogens."* ■



Experimental Mole Criket and Nematode work has been performed thru the State of Florida over the past few months in regards to examining various new labeling pending results and EPA approval. Nearly a dozen courses in geographically different locations have been host sites for various chemicals, not to mention combinations of various insecticides. Preliminary testing is inclusive at the time of going to press, however the future looks promising from a few of the site locations.

## Two Lofts Turf-Type Ryes PVP Certified

Lofts Inc. recently announced that Palmer and Prelude turf-type perennial ryegrass varieties have received Plant Variety Protection Certificates.

Prelude was awarded PVP Certificate *8200177, and Palmer *8200178. Each of these varieties has been on the market for only one year, and were developed jointly by Lofts and Rutgers University's New Jersey Agricultural Experiment Station.

Both Palmer and Prelude have been extensively tested at universities, and each variety has consistently proven its excellence in overall turf performance.

Palmer and Prelude are notable for several important qualities, including improved mowability; tolerance to drought and heat; dark green color; good winter hardiness; improved resistance to crown rust and brown patch; quick establishment; and fine-leafed, dense growth. Both varities are well-suited wherever a ryegrass is applicable, particularly in overseeding programs.

Under U.S. patent laws and the Plant Variety Protection Act, any unauthorized reproduction of these varieties is prohibited. Both Palmer and Prelude turf-type perennial ryegrasses are available only through Lofts Inc., its subsidiaries and distributors.■