

# THRU THE GREEN

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OUR OBJECTIVE: The collection, preservation, and dissemination of scientific and practical knowledge and to promote the efficient and economical maintenance of golf courses. Information contained in this publication may be used freely, in whole or in part, without special permission as long as the true context is maintained. We would appreciate a credit line.



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# PRESIDENTS

I'd like to thank **Larry Norman** and everyone involved with Sonoma Golf Club for providing us with a terrific meeting. Things couldn't have been better. The food, the golf course, the wind. Well done Larry.

It was good to see the 150 plus attendees also. This was by far our largest turn out for a monthly meeting and was good to see the support from our membership. I hope this is a sign of things to come from our Association in the future.

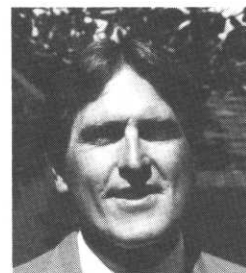
I realize with the demand of our busy schedules we can't always attend every meeting. But meeting attendance isn't the only way to show your support. There are numerous committees you can volunteer your time on which helps our Association tremendously. If you're interested contact anyone of our board members. They would look forward to your help.

Recently I had the pleasure of playing in the Scholarship Tournament hosted by the Sierra Nevada Chapter. This was held at Woodbridge CC. The support they received was tremendous. **Jim Hustings** who is also a member of our Association did a great job. I mention this because as you know we are having a joint meeting with Sierra Nevada in October at Bodega Harbor. Now with the kind of support they received and the support we recently received at Sonoma, our joint meeting has the potential to be the best ever. So I urge you to mark your calendars now.

# MESSAGE

Finally we are looking for any of our Affiliate Members who would like to sponsor a beverage cart at our September Meeting at Richmond CC. It would work the same as our meeting at Oakhurst with the proceeds going to our Scholarship Fund. If sponsoring it alone is too expensive you can always go in together with someone else. It would be greatly appreciated. If anyone is interested contact one of the affiliate representatives Mike Ginelli at Westar. He will look forward to your call.

Mike



# OAKLAND A'S vs CALIFORNIA ANGELS

August 22 at the Oakland Coliseum

## LOOK AHEAD

**July 15**

Supt./Pro Tournament, San Francisco  
Golf Club

**August 20**

Research Committee Field Day at  
Sunnyvale Municipal GC-Bentgrass  
Plots

**August 22**

Oakland A's Baseball Game, Oakland  
Coliseum

**September 19**

Richmond CC

**October 10**

Bodega Harbour GC

**November 6, 7, 8**

Golf Course Superintendents Institute

**December 6**

Annual Christmas Party

## SONOMA GOLF CLUB GOLF RESULTS

### Two Man Best Ball Format

Frederickson, Callan	62
Dalton, Hardy	66
Mooser, Fippiano	66
Duhig, Schaffer	67
Lyons, Gudjones	67
O'Keefe, O'Keefe	67
Willson, Smith	67
Amsted, Aragon	68
Garvale, Naumann	68
Manfrey, Giannini	68
Scolaro, Scolaro	68

## NAUMANN'S NORCAL NEWS

**Carl King** is the new Supt. at Pittsburg G&CC in Pittsburg. He is replacing **Ed Watson**, who is staying with the City of Pittsburg in another capacity...**Tony Steers** has accepted the Supt. position at Contra Costa CC in Pleasant Hill. Tony was the Assistant at Hollywood CC in New Jersey...**Leonard Walsh** recently underwent a quadruple bypass surgery and passed with flying colors. He is home and doing very well. He should be back at work shortly...**Alasdair Brownlie** is the new Supt. at San Bruno Driving Range...**Dana Waldor** recently left H.V. Carter Co. to take his old Superintendents job back at Meadowood CC in St. Helena...**John Winskovicz** has left Westar to move back home to Boston, Mass. to sell equipment for a Toro Dealer there.

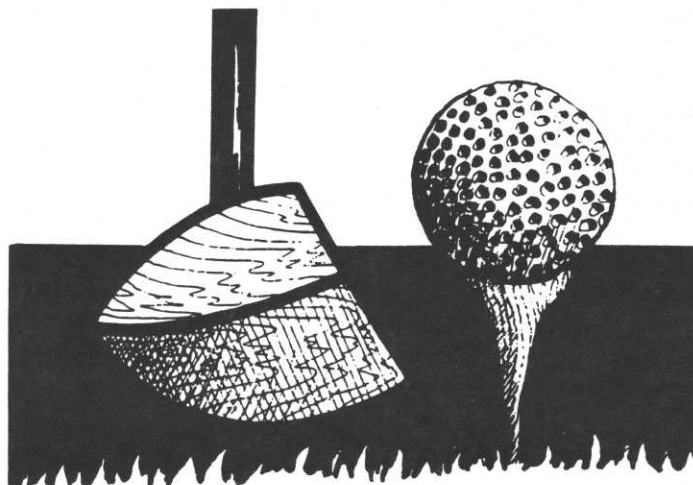
**Ben Rolfestad** former owner recently passed away after a short illness. Benny owned Western Lawn in San Mateo. He was a long time member and supporter.

**J.D. Chastain** recently passed away. He built many of the Golf Courses in California including Blackhawk CC, Crow Canyon CC. Canyon Lakes CC and Almaden G & CC.

**AUGUST 8, 1991**

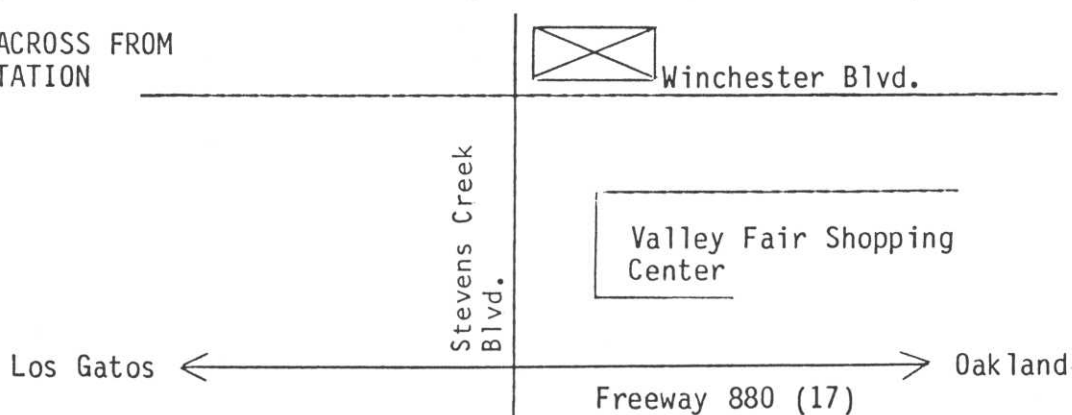
**10:00 AM-NOON**

## FIELD DAY AT SUNNYVALE MUNICIPAL GOLF COURSE-FIRST LOOK AT THE BENTGRASS TRIAL PLOTS



## UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

PRESENTS

**TURF & LANDSCAPE RESEARCH FIELD DAY****WHEN:** Thursday, July 18, 1991, 8:00 a.m. to 12:00 noon**WHERE:** University of California Field Station, 90 North Winchester Blvd., Santa Clara, CAPARK ACROSS FROM  
THE STATION**COST:** No pre-registration or fees. Lunch can be purchased in the area. Refreshments courtesy of **United Agri Products, Inc.** (hats and sunglasses recommended!)**YOU WILL SEE:****Turf**

- U.C. buffalograss breeding program presents newly developed cultivars.
- Performance of 64 turf-type tall fescue cultivars.
- Performance of 12 zoysiagrass cultivars.
- Effects of pre-emergent herbicides on buffalograss vegetative establishment.
- National buffalograss variety trial - 20 varieties.
- National zoysiagrass variety trial - 27 varieties.
- Kikuyugrass management studies.
- Hard fescue management studies.

**Landscape**

- Assessment of three Root Barriers on tree root development and topgrowth.
- Resistance of hybrid elm selections to Dutch elm disease.
- Response by newly planted container plants to slow release and soluble fertilizers.
- Response by several new bedding plants to soil amended with polymers.

**Continuing Education Credits:** The following hours have been applied for: 3 hours for CDFA Continuing Education Credits. 2 hours for Certified Arborist.Sponsored by **University of California Cooperative Extension**

**For more information call:** Ali Harivandi  
Turf, Soil & Water Advisor  
(415) 670-5200

Larry Costello  
Horticulture Advisor  
(415) 726-9059

## FILTRATION ON THE DISCHARGE SIDE OF THE YOUR PUMP STATION

Well water or lake water is often the most feasible and least expensive water source available for golf course irrigation. Unfortunately, these types of water sources have a tendency to include a lot of "suspended solids" in sizes ranging from lawn furniture to micro-organisms. Last month we looked at several methods of filtering out some of the big stuff at the pump station intake. Filtering out the smaller stuff that may cause problems with the more delicate components of your system requires a little more aggressiveness and engineering technology. The questions you asked yourself last month still apply:

1. How clean is my water source?  
What am I trying to filter out?
  2. What components am I trying to protect and where in my system should I locate the filter to accomplish this?
  3. How does the filter work; does it have any hydraulically or electrically operated components that require special consideration?
  4. How much time and money can I afford to spend for installation and monitoring of the filter?
  5. Do I feel lucky?
- If you answered question #5 with a yes, don't worry about filtration...Quit your job and move to Tahoe.

Most of the effective methods of removing smaller suspended solids from irrigation water require positive pressures or flows through the filtration equipment. For this reason it is often necessary that the components be located on, or at least partially serviced by, the discharge side of the pump station. Often the type of particulates you are trying to separate from the water will clue you into the best method of filtration.

If you are drawing a lot of sand out of your well or lake, you may want to include a "sand separator" in your system. Separators are typically long cylinders that create a spiral flow between inlet and outlet. This flow pattern creates centrifugal force which pushes the sand against the separator

wall. The separator is installed at a high vertical angle which forces the sand to a purge valve located at the bottom end of the unit. This valve needs to be opened either manually on a regular basis, or electrically by a signal from the control system and can be piped back into your storage lake or into your sewer and drain system.

The effective operation of this type of filter is dependent on maintaining a relatively high velocity of water through the separator. If your system has a lot of variation in flow volume, it may be necessary to install several separators of different sizes and direct flow through whichever separator will effectively filter out the solids.

Irrigation water often has damaging suspended particles that do not have enough specific gravity relative to the water to be effectively removed by centrifugal force. These particles must be removed by forcing the water through one of more filter elements that trap the damaging particles but allow the water (and particles that are small enough to have no significant effect on the system operation) to pass.

One method to accomplish uses a bed of sand in combination with a sand separator to filter out particulates. These units are called "media filters" and consist of a series of drums that include a sand separator assembly and are partially filled with a "media sand" bed through which the water flows. Particles are trapped within the media sand and the water is allowed to pass into the irrigation pipe network. The trapped particles are cleaned out of the media sand by a sequenced "backwash" process where water is forced through the sand bed in the opposite direction and sent out of the system through a backwash disposal pipe network.

Another method commonly used is to install an "automatic self cleaning filter" unit that consist of a series of drums that include a sand separator assembly and are partially filled with a "media sand" bed through which the water flows. Particles are trapped within the media sand and the water is allowed to pass into the irrigation pipe network. The trapped particles are cleaned out of the media sand by a sequenced "backwash" process where water is forced through the sand bed in the opposite direction and sent out of the system through a backwash disposal pipe network.

Another method commonly used is to install an "automatic self cleaning filter" unit that consists of a tube that contains several cylindrical screens or discs in varying degrees of porosity. The water is forced into the center of the tube and out through the screens. Particles are trapped on the interior surface of the cylindrical screens and the filtered water continues on its way to the irrigation system. As the filtered particles build-up on the surface of the screen, the difference in pressure between the interior and exterior of the screen increases. The filter includes a differential pressure switch that monitors this pressure build-up and when the pressure increases to a certain differential (usually 5-10 psi), the switch opens a hydraulically operated exhaust valve and activates a rotating suction mechanism that effectively "scrubs" and "vacuums" the solids off of the screen surfaces. A small amount of water is required for this flushing action but does not significantly effect the flow in the irrigation system. These solids and the water required to flush them are discharged through the exhaust valve. When the screen is clean enough to reduce the pressure differential to a normal level, the cleaning and flushing mechanisms. The flushed water can be piped back into your storage lake or into your sewer and drain system.

Each of the filtration methods discussed in this articles have certain requirements with regard to water pressure and/or flow volume in order to operate effectively as designed. In addition, they all will create a certain amount of pressure loss through their assemblies during the operation of the system. It is important that you select the correct type, size and configuration of filtration components to suit your needs and to operate in harmony with your irrigation system. It may be to your advantage to enlist the services of a professional irrigation consultant and the appropriate filtration system manufacturers representatives prior to installing filtration equipment on your irrigation system.



# LEGISLATIVE AWARENESS - A MUST TODAY

In recent months, various governments instrumentalities have attempted to enact legislation which could have had an adverse effect upon the operation of golf courses and their resultant quality. In several instances, attempts have been initiated which could have limited or gained the use of fertilizer on golf courses. Additionally, we have seen trial balloons flown concerning rationing of fuel, real estate taxation methods and increasingly harsh regulation of necessary pesticides.

Government, be it local, state, or federal, continues to be felt more and more on the golf course. The time when golf courses were seldom affected by such matters has long since passed, and now the superintendent and all other supervisors at a golf course must consider these laws with almost every action they take.

We may be an industry guilty of complacency and not mindful of serious inroads which have been made and others which some contemplate that could easily alter this picture if allowed to continue unaltered. Consider for example that most decisions made concerning golf are based upon the premise that golf courses as they have become known, will continue. Recent governmental attempts in some areas cast a dark shadow across all golf course, and in some instances, endanger their very existence.

When professional associations of "greenskeepers" were established some fifty years ago, the primary reason for their formation was to assist the members in scientific areas of turfgrass management through the dissemination of new information. While this reason still exists today, an important new area is that of being in a position to react to potential government actions.

Graphic examples of cooperation between professional associations and governmental bodies can be found daily. Within the golf course superintendent's profession, there are several excellent examples of how a united group can insure that its interests are represented and considered prior to final action. First at the federal level and more recently at the state level. Massachusetts and Michigan for example, some legislators proposed the banning of non-farm fertilizer usage. While

individual or local interest was first aroused, this was closely followed by organizational efforts to present information to legislators which was vital to a complete and thorough understanding of the problems which would follow such a ban. Fortunately, we can say today that these federal and state proposals were permitted to die without moving beyond the committee level. However, this is not to say that further attempts by these or other governmental bodies will not be forthcoming, nor can we afford to become relaxed on the issue. Unfortunately, the golf superintendent's interests may not always receive the mindful considerations they deserve by the lawmakers.

The Golf Course Superintendents Association of America (GCSAA) made determined efforts on the Massachusetts and Michigan fertilizer bills and on a Wisconsin pesticide bill by advising the chapters in those states of those proposals, followed by suggested actions and/or GCSAA position information. Superintendents in those states acted in unison through a letter writing campaign and in offering testimony to support their concerns.

This is not a totally new area of action for GCSAA, with it having given testimony, concerning pension reform legislation, as well as in dealing with the Environmental Protection Agency; however, involvement in the state level legislation is relatively new and caution must be taken to insure that counter-productive measures are not permitted through a conflict of actions by the state and national organizations. Neither should GCSAA attempt to supersede the chapter's prerogatives in state level actions, because the impetus must remain at the local level where those who will be most directly affected will have the greatest input. GCSAA's intended posture is that of acting as a hot-line to disperse information and to serve as a reservoir of resource information and prepare nationwide position papers.

Because more and more legislation is of concern to golf courses and historically it has been demonstrated that legislative actions are duplicated from the local and state levels to the national level and vice versa, a seemingly minor item of legislation may soon become so significant that it is affecting the profession nationwide. Additionally, a piece of legislation may appear to be insignificant at the time of passage and later, through interpretations and enforcement policies, become of tremendous import to the profession and the superintendent's ability to perform his required tasks.

Based upon these trends and historically documented cases, each member of the chapter must be on the alert for legislative developments within his geographic area and report to the chapter. Next, the chapter must determine if the proposal could be harmful or helpful and what would be the best approach to the matter. If the chapter feels this development is of a considerable magnitude or if possible assistance is desired, they could report the item to the GCSAA office or headquarters personnel. In some instances, GCSAA may advise chapters of impending legislation or seek the assistance of persons within the chapters to represent the national organization at the local level.

Individual superintendents may not be able to be aware of all legislation which could affect them, nor would they always be able to bring to bear the impact an organized effort would. However, it is the individual superintendent who must bring these matters to the attention of the organization so that the appropriate actions can be taken. This effect could become even broad based if a course's golfers could be encouraged to become involved to the extent of reporting items of interest to their superintendent.

We can ill afford to be legislated out of existence and fortunately through our professional association, we can position ourselves to insure that our interests are represented on all times of legislation which could negatively or positively effect our ability to provide the type of conditions that today's golfers have learned to expect and appreciate.

Preceding article from May, 1975 A Patch of Green

## WHO CALIBRATES YOUR SPRAYER?

Last summer, researchers visited 53 of the 60 golf courses of the Nebraska golf Course Superintendent's Association (NGCSA) and found that only one of the six were accurately applying pesticides.

Their calibration accuracy study showed that only 17 percent of the courses applied pesticide carrier volumes within five percent of their intended amount (though this number may be conservative because possible tank mixing errors were excluded [Spray equipment not delivering within five percent of the desired pesticide carrier volume should be adjusted and recalibrated according to the **Guide for Private and Commercial Applicators.**])

How bad was it?

The average applicator error was 26 percent. However, the magnitude of errors ranged from a mere 0.1 percent to an alarming 177 percent over application.

Cooperators who over-applied did so by an average of 19 percent. For a quick estimation of over applied costs, assume an average preventive rate of Daconil 2787 at 4 oz. per 1,000 square feet was used (Daconil 2787 was the most frequently used pesticide among the study's cooperators at an average of \$37 a gallon).

Correctly applied, the cost of Daconil would be \$1.16 per 1,000 sq. ft. However, using the average over-application error of 19 percent the cost of application would be an additional \$0.21 per 1,000 sq. ft. These costs escalate when considering the total treated area with multiple treatments throughout the season.

In many turf programs, pesticides are key elements in management programs, but are useful only if applied according to label directions. If not properly used, pesticides may become our worst nightmare rather than a proven management tool as we begin the 1990's.

Over application may also cause turf damage, excessive pesticide residue, increased potential human exposure and water contamination through surface run-off and percolation - Another costly venture.

Golf courses are unique in the fact that they are often positioned near residential areas with a body of water nearby, and are designed to attract people for entertainment. This makes awareness and accuracy of pesticide application even more important.

Those who under applied pesticides did so by an average of 34 percent. This can be just as costly as over application. Under application may require additional applications, which increase pesticide, fuel and labor costs.

In addition to quantity of pesticide applied, sprayer performance was evaluated on the quality of pesticide application. Quality of application refers to the consistency of nozzle discharge across the boom. This was determined by measuring discharge measurements from each nozzle along the boom.

Eight-four percent of the cooperators were within guidelines. This suggest that cooperators are maintaining nozzles appropriately. If two or more nozzles were discharging more than 10 percent above the discharge average, operators were advised to replace them all.

Frequency of calibration was closely, associated with application accuracy. Two-thirds of the applicators who calibrated before each spray operation were within the 5 percent application error criteria. Comparatively, only five percent of those who calibrated less than once per year were within 5 percent. More than one-third of the cooperators calibrated less than once a year.

### CALIBRATION METHODS

The "known area" calibration procedure was the most common procedure used on golf course. However, only 14 percent of the superintendents employing this procedure were considered accurate applicators.

The most accurate cooperators were those who used spray monitor and controller systems. Sixty-seven percent of these applicators were accurate.

The most common application equipment used on Nebraska golf courses were Cushman Trucksters equipped with Broyhill sprayers, centrifugal pumps and fan nozzle tips. A common problem among sprayers in the study involved pressure gauges showing a system pressure different than the actual nozzle pressure.

Random inspections of pressure consistency among sprayer systems found difference as large as 30 psi. The most probable cause for most of these pressure differences were faulty gauges. Many gauges showed signs of corrosion, had broken crystals, or had a measuring range too large to accurately measure typical operating pressure.

### NOZZLE PROBLEMS

Restrictive plumbing systems, which included excessive lengths, inadequately sized and kinked hoses, improper screen sizing and anti-drip devises, were other faults leading to reduced pressure at nozzles.

Educational programs focusing on pesticide application accuracy should continue to address safety concerns for both the applicator and the environment. These programs need to educate applicators to calibrate their equipment and explain why calibration should be mandatory for any individual who deals with pesticide applicators. Applicators need to be certified for their own safety, the safety of their clientele, the general public and the environment.

Applicators should learn to use one or two calibration procedures consistently to assure regular pesticide application accuracy. Procedures should include measuring and adjusting system pressure, ground speed and nozzle discharge. These procedures should be used before each spray operation. Equipment failure and changing sprayer operations warrant this routine.

Sprayer discharge capacities and pressure gauges should be tested for adequacy and accuracy. Pressure gauges should either be replaced or tested at least once per year.

Reprinted from Indiana Superintendent's News, 1990