Irrigation Roundup

tips from specialists in the field to 3000 golf course superintendents at the GCSAA 39th International Turfgrass Conference and Show

Cost Analysis:

Garold M. (Jerry) Murphy, superintendent, Somerset Country Club, St. Paul, Minn., reported on the 1967 conversion of a quick coupling system at his club to an automatic Toro Varitime satellite system.

For GCSAA members, he presented an analysis of the costs and general operating experiences with the new system. His own time in operating the new system requires 5 to 10 minutes once or twice weekly. This is spent adjusting the master controller to adapt to changes in weather and spot checking of satellite control dials.

Sprinklers for the system are gear driven and make the complete revolution in 3 minutes. This, Murphy pointed out, is adequate for relief of stress under the Somerset course conditions. This also permits timing syringing to suit play and results in minimum interference with golfers.

Operating costs presented in the table include electricity and lubricant for the pump and gas and lubricant for the patrol vehicle. It does not include repair or depreciation. Cost for the 2 systems is comparable. The slight difference in favor of the automatic system probably is valid, since night watering can be completed in 12 hours as compared to the 14 hours formerly needed with the quick coupling system. Major operating cost, Murphy said, is for electricity.

Table 1. Cost of Operation—Quick Coupling Vs. Automatic.

	Quick Coupling			Automatic		
Hours	July	Aug.	Sept.	July	Aug.	Sept.
Operation—System	300	250	140	300	260	140
Labor—Night watering	200	180	140	0	0	0
Syringing	100	70	0	35	20	0
Cost						
Operation—equipment	$ 720	$ 570	$ 220	$ 600	$ 540	$ 180
Labor at $2.00/hour	600	500	280	70	40	0
Total	$1,320	$1,070	$ 500	$ 670	$ 580	$ 180

Three Months' Totals	
Quick Coupling	$2,890.00
Automatic	1,430.00
Savings	$1,460.00

Some cost benefits of the automatic system are difficult to assign a monetary value, Murphy reported, but they do exist. He enumerates them as turf benefits and as people benefits. He suggested that superintendents might assign their own dollar value to these (Tables II and III).

In general, Murphy said, the savings in labor and operating costs are significant and impres-

Table 2. Turfgrass Managament Benefits—Favoring Automatic.

1. More efficient use of water.
2. Precise control of water.
3. Water conservation.
4. Minimum loss of turfgrass.
5. Less wear and tear on turfgrass.
6. Easy to remove dew and frost.
7. Easy to water in fertlizer.
8. Less down time associated with sprinkler repair.

Table 3. People Benefits—Favoring Automatic.

1. Golfer satisfaction.
2. Happier crew—no one assigned night duty.
3. Smaller more efficient crew.
4. Less vandalism.
5. Shop is locked at night.
6. More favorable comments on condition of golf course.
7. Peace of mind—Superintendent.

sive. Of even greater importance, he believes, especially to himself and the Club, are the benefits related to golfer satisfaction.

Irrigation System Design:

Chances are, when you invest in an automatic irrigation system you are going to pay the same price as a good, well planned system would cost. Why not insure that you will get what you pay for? This is the opinion of Richard R. Abernethy, Telsco Industries, Dallas, Tex.

Abernethy, in presenting the official GCSAA Golf Course Irrigation questionnaire to GCSAA members for help in planning and designing custom irrigation systems said that the trend today is toward "turnkey" design and installation. This type system, he said, is done by competent, specialized golf course contractors. Such firms today are well capitalized, employ engineering personnel for both design and construction supervision, and have the specialized equipment to do the job right.

Tremendous responsibilities are placed on the superintendent by members and directors for the success of a system which is a major investment. Abernethy points to the questionnaire as a means of covering, in practical language, all the major areas necessary for the irrigation designer to prepare an authentic, accurate and practical estimate of individual irrigation needs.

No one knows the course better than the superintendent, Abernethey implied. He pointed out that water requirements vary from one geographical area to another. Fairways, greens and tees require special consideration, especially for drainage and wind problems. Only the superintendent knows how often the course requires hand or supplementary manual watering. Thus, he believes that the questionnaire provides the "common denominator" which will enable the superintendent to (1) better evaluate the job, (2) communicate the facts to the decision making administration, and (3) better understand the finished product or design when the final plans are presented for approval.

This approach, Abernethy said, can save money.

Primary Decision Making:

Engineer Don A. Hogan, D. A. Hogan & Associates, Seattle, Wash., presented the 3 common approaches to the problem of golf course irrigation design and installation and the problems associated with each. First, Hogan said, is the "package deal" or the "turnkey job." This is attractive, but Hogan pointed out, leaves the club somewhat vulnerable because the seller determines amount and quality of work and material, while the owner does

GOLF COURSE IRRIGATION SYSTEM CHECK LIST AND PLANNING GUIDE

Name of Course_____
Address _____
Phone _____

Superintendent _____
Club Official _____
Architect or Engineer _____
Address _____
Phone _____

1. Plot Plan available? _____
2. Topographic Map available? _____
3. Number of holes—9 _____ 18 _____
4. Type of system desired—Fairway _____
   Tee & Green _____
   Fairway, Tee & Green _____
5. Total yardage of course _____
6. Fairway width _____
7. Fairway turf _____
8. Greens turf _____
9. Type of soil—Sandy _____ Loam _____
   Clay _____ Rocks _____
10. Sod removal—All _____ None _____
    Club handles _____
    Contractor handles _____
11. Ground water table _____
12. Available water supply _____
13. Contemplated water supply _____
14. Lagoon or reservoir data _____
15. Prevailing wind direction _____
    @ _____ mph _____
16. Type of system desired:
    Quick coupling valves _____
    Rotary Pop-up _____
    Automatic _____ Manual _____
17. Special instruction greens:
    Pop-up ____ Manual ____ Automatic ____
    (a) Pop-up with quick coupler for supplemental hand water _____
    (b) Valve leeward and windward heads separately _____
18. Total time desired for weekly watering program _____
19. Desired inches precipitation per week:
    (a) Fairway & Tees _____
    (b) Greens _____
20. Any special operational desires _____
21. Desired time to start installation _____ (Date)
22. Desired completion _____ (Date)
23. Type of pipe desired:
    (a) Main lines: A.C. _____ C.I. _____
    Other _____
    (b) Laterals: PVC _____ Copper _____
    Galvanized _____
24. Location of pumps and pump house _____
25. Location and availability of electrical power supply _____
26. If automatic, desired location of controls _____
27. Design Check List:
    1. Aerial photo required—Yes ____ No ____
    2. Field check to confirm measurements—Yes _____ No _____
    3. Preliminary plan approval—Yes _____ No _____
    4. Final presentation complete plans & specs—Yes _____ No _____

not have an experienced person protecting his interests. Normally, design and materials are limited to a single representation. And, Hogan said, it is not probable that architectural professional ethics can be completely divorced from the influence or effect of the contract profit aspects.

The second approach is the combination of design and materials supplied by one firm and a separate contract for installation, or where the owner installs the system. This method, according to Hogan is normally less costly. Here, again, he said, lack of construction coordination may result unless the owner has an unbiased, experienced representative to supervise and coordinate the project. The term "design" as applied usually covers only a simple drawing or layout. Other engineering requirements must be performed in conjunction with the basic layout.

The 3rd approach by Hogan was the professionally designed system by a qualified engineering firm, combined with the installation being performed by the successful bidding contractor. In this case, the contractor's work is supervised and inspected by the engineering firm who represents and protects the interests of the owner. Hogan, an experienced engineer in the business, believes a private engineering firm paid directly by the owner is the best arrangement.

The team approach, in the belief of Hogan, can result in the most satisfactory system. He lists team members as follows: (1) club committee, (2) golf course superintendent, (3) professional designer, (4) installation contractor, and (5) material suppliers.

Each member group on the team needs specific qualifications and has definite responsibilities, Hogan said. The club committee is first. This group needs to be dedicated and willing to devote time and effort. They must work directly with the golf course superintendent and engineer.

The golf course superintendent is a vital team member. His knowledge of the course and turf management will influence the type of system to be approved. He must present operating costs in conjunction with the engineer, work out completion schedules, and see that future plans of the course are in line with the new system, plus a myriad of other details which must be coordinated with the entire team.

The 3rd member of the team, the professional designer, must work closely with the club committee and superintendent in a detailed design. This will include all construction details and specifications, prepared for bidding and construction control purposes. He must screen bids, approve materials, monitor construction work, and perform necessary tests, in detail, of the installed system. Finally, upon completion, he must certify the installation and furnish operating instructions and "as-built" drawings.

Job of the contractor as a team member is to install the system in a workmanship manner in complete accordance with the specifications. He must use quality materials and equipment, and supervise the project, at the same time working closely with the superintendent to familiarize him with operation and maintenance.

Material suppliers must provide data on materials and equipment, assist the contractors in bidding, coordinate delivery of materials, instruct the construction crew, assist in final adjustment and testing, and generally service their products.

Because of the magnitude of the modern irrigation system, Hogan pointed out that it warrants the best possible development. It is a serious mistake, he said, to settle for less.