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# GRAU'S Answers to Turf Questions

BY FRED V. GRAU

## Coordination of Agronomic And Irrigation Factors

About a year ago I was in the Dominican Republic to assist in the reclamation of turf at the Santo Domingo CC. The water situation was reminiscent of that of today — insufficient, erratic and unpredictable. When there was any water it would trickle lazily out of the end of a half-inch hose laid on a 328 Bermuda green. Gravity had to assist in its distribution. Pressure, nearly non-existent, couldn't operate a sprinkler. Fairways of Sourgrass were irrigated only by the rain, but they were surprisingly good.

Few architects would take it upon themselves to design and build a course where the water supply isn't ample. Fully automated irrigation systems would be useless without water. Yet, there are situations where the only requirement is that the greens be watered.

Behind every type of watering system, primitive or sophisticated, there are basic agronomic factors which, if ignored, can lead to disappointment, often in the extreme.

### Turf's First Requirement

I have always contended that the first requirement of turf is a program whereby nitrogen is adequately provided along with an optimum balance of other nutrients. Water is secondary and should supplement natural rainfall. A fertility pro-

gram, not properly balanced, will produce less than satisfactory results.

Where water is adequate and easily supplied, too often it is called upon to fill the deficiency in a fertilizer program. When this happens, the product is weeds and, of course, an excess of *poa annua*. Once *poa* becomes dominant it enlists a larger army of shoulder-shruggers who say, "If you can't lick it, join it."

### Try and Let It Dry Out!

At many courses, unfortunately, members dictate the irrigation policy. Many supts. have told me they would like to skip watering for a while and let the soil dry out to further downward root extension. But when the soil begins to get firm, there are the old complaints from the golfers. Then an order comes from the green chairman: "Start watering!" Under such circumstances, how can any supt. conduct a planned sensible water program?

It is an established agronomic fact that plants make much more efficient use of water when fertility levels are adequate. Well-fed turf will retain its green color much longer than hungry turf, even if water is held back.

### Need or Habit

Research stated at Penn State in 1946 has shown conclusively that the best golf turf receives water only when needed. At the 1965 Purdue University turf conference, a speaker asked for a show of hands on the frequency of fairway irrigation. The majority of supts. indicated

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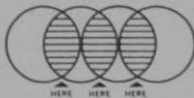
... save up to \$20,000 on labor costs over 10 years if you sprinkle just three months a year;

... save up to \$120,000 on labor costs over 10 years if you sprinkle nine months a year.

And if you now have an underground system with quick couplers and impact sprinklers, you can convert to Toro's automatic system and recover your investment in as little as five years.

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**Exclusive sprinkler nozzle design** results in the industry's most effective precipitation rates ... can actually reduce your water costs up to 25%.

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## Certification

The word "certified" means "assured, made certain, or endorsed authoritatively." To merit the term, the product must be produced under certain rules and regulations prescribed by an official certifying agency.

Certified, applied to seed, means that the product has known or assured parentage and that it has been produced under rules and regulations which insure preservation of its identity and its genetic purity.

Certified seed is produced by growers who cooperate with crop improvement associations or with state departments of agriculture. Either or both may serve as the certifying agency. A **Blue Tag** is the well-known mark of certified seed.

Blue Tag certified seed can be traced by lot number to the "mother" or breeder seed. Breeder seed of Merion Kentucky bluegrass was produced at Penn State from a pound of seed sent by Fred Grau at Beltsville to Bert Musser at Penn State. A few ounces of breeder seed were planted under close supervision to produce foundation seed. Growers planted seed to produce Blue Tag certified seed which would be sold to golf courses and sod farms where discriminating supts. and operators wanted to be sure that they were getting only Merion.

Another example is Penngift Coronilla (crownvetch). The Breeder seed is produced only from the tiny farm where it was discovered in

1935. Planted in isolated protected fields, breeder seed produces foundation seed which is furnished to growers who desire to produce Blue Tag certified seed. Each generation is carefully protected to assure the buyer that the product he plants is genuine Penngift.

Penncross bentgrass seed can be certified only if the three vegetative parents (breeder stock) are purchased from qualified growers and if not more than three (3) crops of seed are taken from the fields. Apparently some growers continue to harvest seed after the three-year limitation. It is sold as Penncross but does not merit the Blue Tag and, therefore, can't be certified.

Uncertified seed carries no assurance of genetic purity. Everyone should be familiar with the Latin expression, "caveat emptor" which means "Let the buyer beware" or "He buys at his own risk." He who buys uncertified seed has no redress when plants, which are other than those expected, emerge. There is discussion on a proposed ruling that a variety name may not be used for any seeds not eligible to carry the Blue Tag of certification.

Certification usually implies that the seed also is of high mechanical purity and has excellent germination. This is not always true but most producer-processors pride themselves on a high-quality product in all respects when it merits the Blue Tag. Certification is denied when purity falls below an accepted standard or when weed seed content is higher than acceptable.

that they water fairways three times a week. Obviously, their courses are not being watered on the basis of need, but from habit. It may have been a coincidence that the main topic of the conference was "Poa Annua Control."

Another conclusion of researchers is

that water should be supplied only as fast as the soil can absorb it. Thus, the infiltration rate is an important agronomic consideration. Development of soil cultivating equipment has made it possible to improve infiltration capacity, but its

*(Continued on page 118)*

end  
weed-killer  
confusion

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End "weed-killer confusion"—simply apply **MECOPEX** and **MECOPAR** with any standard spraying equipment.



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*Many could be saved if  
more care were taken in planning*

## Construction Pitfalls Are Obvious—But Are So Easily Overlooked

By **LOUIS BERTOLONE**

**Y**ears ago a course architect had to hope that a selected golf terrain had a stream, a lake and many natural course qualities on it, so that he could make use of them. Even then, most of the time, the natural qualities were never in just the right place, but they were there and the architect made the best possible use of them.

Today, all this is changed. The big tractors and carryalls move voluminous amounts of soil in a matter of minutes. The characteristics of 120 or 150 acres can be completely altered in a matter of a few days. Lakes of the right size, shape, and depth can be constructed exactly where they are wanted. If the course of a stream is not where it is wanted, it can

*By the time he was 20 (which, he says, was a few years ago) Lou Bertolone had built two nine-hole courses. A pro for more than 35 years, he took time out after World War II to attend the University of California and get a degree. Thereafter, he went into course design and construction work and more recently has served as a turf consultant. Lou has a putting green in his backyard in Los Altos, Calif. That may be one reason why he shoots in the 70s.*

be filled and another creek bed constructed.

These new techniques are a dilemma for the old established golf clubs. They are being forced into modernizing their courses. Re-contouring of fairways, re-shaping of greens, designing modern tees and building of artificial lakes vastly improve a golf layout. These things have to be done if a club is to retain its membership.

### Placed As A Challenge

The placement of lakes, traps, trees, undulations, and tall grass should never be in a location where a well directed shot will go. Hence, when lakes are placed in the fairways, they should be placed and shaped so as to challenge and intrigue, perhaps even tempt the golfer into "taking a chance." On the other hand there should always be plenty of room away from the danger, giving the golfer a chance "to play it safe."

Perhaps, the most critical part of a modern golf course is the "setting off" of the green itself. The contouring around a green is vital. This "setting off" is done by the careful placement of the traps, their size and shape, and by judiciously contouring the mounds, and in having them of the appropriate size and shape. Certainly, there should be two or three water holes on every golf course. One of

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Paul Weldin, Jr., Superintendent at the



Kennett Square G & CC, also reports a marked improvement in the quality of his top dressing. The POWERSCREEN-produced top dressing is finer and more homogeneous than manually screened materials—has done away with clogged spreaders and eliminated pebbles on the greens.

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Turf and park management students at the 14th annual Winter short course, Univ. of Illinois College of Agriculture, held their annual banquet at the Urbana (Ill.) CC. This year marked the first time that turf and park management had been included as part of the short course. This program was designed primarily for persons who are employed in turf and grounds management by golf courses and others.

these water holes should be on a par 3 hole. The lake should be close enough to the green to challenge the golfer's fine touch. The tee, if possible, should be slightly higher than the green, and the tee should be half-moon shaped to give the golfers a demanding yet safe shot.

A factor which no club or course owner can overlook is the cost of maintenance. A course should be designed to minimize upkeep costs. All design should be done with mowing, labor, watering, and other costs in mind. Oversize greens shouldn't be built just because it is the fad. There should be a purpose in building them, especially when it is considered that the cost of fertilizing a 10,000 square foot green is almost twice that of a 5,000 square foot green. And, fertilization isn't an experience that stops at the end of one year.

In designing a course, the use of golf cars must be considered. But if a choice is to be made between good course architecture and good traffic patterns for the cars, good architecture should be given the preference.

Course design and construction are in-

volved subjects. The surface can only be touched here. To mention some of the pitfalls into which some people have fallen, may save others anguish and abuse.

#### Difference in Attraction

Two golf courses were constructed in nearby locations in the same town. Today, three years later, one course enjoys a full membership; the other, with 18 holes, has barely 150 members. The course with the full membership has beautiful green fairways all through the summer. The other course has a water problem and dry, brown fairways during the summer months. Just how many members this club would have if it could keep its fairways as green as the first club is rather difficult to determine. Perhaps 100 or 150 more.

The dues at the two clubs are approximately \$40 per month. This means that the club with poorly conditioned fairways is losing \$6,000 a month — right off the top. In addition, how much is this club losing at the bar and in the restaurant?

This revenue is lost because the people who started the club were unwilling or

*(Continued on page 108)*



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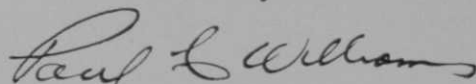
To that end, Scotts has not only pioneered in developing more effective products, but also in developing multi-purpose products that save labor, scheduling time and storage space.

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In the final analysis, Scotts research endeavor is designed to help you, Mr Superintendent, unlock more and more secrets of nature -- help you utilize natural forces so they work for you rather than against you.

Please drop us a line any time.

Sincerely



## Wide Cost Variations within A Single District

If the impression persists that country clubs in the same section of the country are operated at approximately the same cost, it is again belied by 16th "Directory of Information," published in April by the Chicago District Golf Association.

As it always has in the past, the CDGA has made an extensive study of grounds and greens maintenance expense at 56 clubs in the Chicago area for 1964 and reestablished the fact that course upkeep at a North Side club comes much higher than at one designated as being in an "Out of Area" location. The average cost of maintaining an 18-hole NorthSide club is \$80,500 as compared to \$48,815 for an "Out of Area" club.

The greater part of the difference in the figures cited above is accounted for by wages paid course employees, and by new greens building or course rebuilding projects that were undertaken in 1964. Total average wages for NorthSide clubs amounted to nearly \$36,000 last year as compared to \$18,400 for clubs in Out of Area locations. Supts' salaries are not included in these figures.

NorthSide clubs invested an average of \$23,200 in new building and renovation projects in 1964, about \$7,000 more than the average for Out of Area clubs. Their combined bills for sand and soil, chemicals, fertilizer and seed, gas, oil and grease, new machinery and machinery repairs and miscellaneous items totalled about \$9,000 more on the average than clubs in Out of Area locations.

### District Wage Scale

Grounds expense at 12 West Side and seven South Side clubs in the CDGA fell about halfway between the average totals for NorthSide and Out of Area clubs. The wage scale for the entire district varies from \$1.85 at NorthSide clubs to \$1.65 at Out of Area clubs. The prevailing rate at

West Side locations is \$1.80 and at South Side clubs, \$1.70.

Grounds and Greens expense is one of 13 categories covered in the 1965 CDGA Directory, which is perhaps more comprehensive than any published before. More than four months of work went into its preparation, according to Carol McCue, who is in charge of assembling and compiling the material that is included in the Directory of Information.

### Bar Gross Off Slightly

A total of 39 clubs, somewhat fewer than in five previous years, reported on 1964 Bar operations. The average gross profit for all (64 per cent) was slightly lower than it had been in three previous years. Bars at NorthSide clubs were a little more efficiently run than those at other locations. They reported a 66.5 gross compared with 65.3 for West Side clubs, 64.5 for South Side clubs and 60.8 for Out of Area clubs. Sales for all clubs ranged from \$27,250 to \$153,800, with the average being \$79,250. NorthSide clubs were high with an average of \$92,300. Their sales ran about \$23,000 higher on the average than those at West Side clubs, which reported lowest bar revenues

Average charge for Bourbon, Scotch, Manhattan and Martini drinks at NorthSide and South Side clubs was in the 80-85 cent range, and at the others in the 70-75 cent range.

### Restaurant Gross — 52.4 Per Cent

West Side clubs ran their Dining Room operations most profitably, making a 55 per cent gross. All other sections reported realizing more than a 50 per cent gross. The average for the district's 40 reporting clubs was 52.4 per cent. This was about the same as it had been in 1963 and 1961, but a percentage point behind 1962.