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# What Makes a Course Great in Greenkeepers' Eyes

By T. M. BAUMGARDNER

Chairman, Southeastern Turf Advisory committee

Factors and conditions that make the golf course great from the greenkeeper's viewpoint are practically identical with those that make the golf course most enjoyable and satisfactory from the players' angle. However, unfortunately (for the greenkeeper) club members and players are all too frequently not too familiar with the underlying factors which make this statement true.

Obviously, the greenkeeper's main concern is with those factors of golf course architecture and construction which will enable him to economically maintain the entire course in the best possible playing condition throughout the season or year under adverse as well as under favorable weather conditions.

The burden first falls upon the architect and the builder to provide insofar as it is within their power to do so, the most favorable conditions of drainage, soil and contour to provide the greatest possible economy of maintenance and the optimum growth of the specialized golf turf grasses best suited to the particular locality in which the course is situated. To accomplish this result, the designer and builder must have a thorough knowledge of the best modern turf management practices. He should also certainly seek the best possible advice and consultation available from regional turf research centers and successful greenkeepers of the locality to help him adapt his ideas to the particular climatic and soil conditions of the region.

Some factors which contribute most to the greenkeepers' and at the same time to the club members' and players' happiness are as follows:

1. Perfectly drained and aerated greens; and, by drainage in this connection, we mean correct and adequate surface as well as sub-drainage. By perfectly aerated greens, we mean after proper drainage requirements are met, the incorporation of the proper proportions of coarse and finer-particled materials, humus and topsoil to provide needed aeration to encourage deep-rooted, healthy turf.

2. Well drained fairways and traps.

3. Contouring of bunker, green and tee back slopes which will permit maximum use of machine maintenance and a minimum of hand labor.

4. Adequate cupping space on the greens to prevent excessive wear and compaction.

5. Trees not too near important turf areas to prevent root-filled greens, excessive shading and poor air drainage conditions.

6. Well designed and adequate irrigation system with ample water supply to permit efficient operation.

7. Good equipment barns and shop which provide adequate storage space for all equipment and supplies.

8. Provision in the original budget for sufficient, good labor-saving machinery to properly maintain the whole course economically, with a minimum of hand labor.

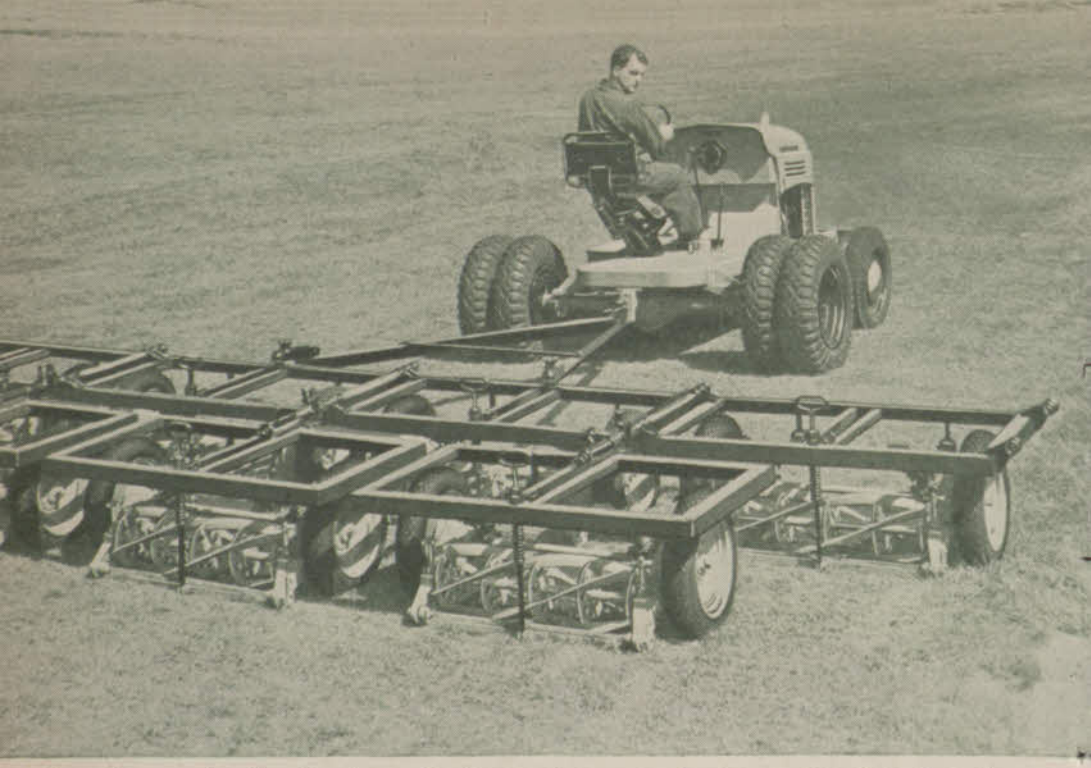
### Sense in Saving

It would seem to those of us with a background of experience in golf course maintenance and management that the consideration of all of these factors would be a matter of just plain good sound business sense on the part of those entrusted with the responsibility of the design, construction and operation of golf courses. They should certainly realize that the ultimate success of the course and the economy of its operation, over the years, depend upon the incorporation of all of these things in the original planning and construction. The same line of reasoning should apply to the consideration given by club executives to the need for correcting such adverse conditions on established courses.

The old phrase "the first cost is not always the greatest" certainly applies a hundred-fold in golf course management.

I am sure all of us realize how difficult it is after the course once is built to sell most club executives on the advisability and economy of correcting adverse physical conditions on the course. As a result of this short-sightedness, many thousands of dollars in unnecessary maintenance costs are being squandered every

*(Continued on page 94)*



Grass Blitzer speed really makes short work of large golf course roughs when you "open 'er up" on the straightaway. This 7-gang Grass Blitzer-Worthington Chief Tractor team is capable of 20 m.p.h. cutting speeds under level ground conditions.

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# GRASS BLITZER
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The Rough Grass Blitzer is Worthington's answer to the problem of keeping roughs under complete control. With this unit you can cut golf roughs in less than one-tenth the time required by sickle bar or other methods. Grass Blitzer mowing not only saves time and labor but keeps playing areas in A-1 condition at all times.

Regardless of the condition or terrain features of your rough, you can put the Worthington Grass Blitzer to work with confidence. Rugged, precision-built, it takes the bumps and strains of high speed mowing work while producing a smooth, clean cut.

Because of the convertible frame feature the Worthington Grass Blitzer units can be easily and quickly joined into 3, 5, 7 or 9-gang units without tools. This permits use of smaller gangs in confined areas and the big gangs in open spaces.

Although the Grass Blitzer can be hauled by any make wheel tractor or truck, Worthington's powerful, easy-handling Chief tractor, developed especially for hauling gang mowers, is recommended for top notch performance at low cost.

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Here a 3-gang unit demonstrates how easy it is to cut between bunkers. Notice how the units conform to surface irregularities. Your roughs are always under control with this gang on the job.

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### *LOOK AT THESE ADVANTAGES!*

- 3, 5, 7, 9-gang sizes — there's a right size for every course
- Cutting speeds to 20 m.p.h. depending on ground conditions
- No bobbing regardless of conditions
- No rollers — grass stands straight after mowing
- Cutting heights from 1¼" to 3½" in ¼" increments
- No raking, as is necessary after sickle-bar mowing
- Easy adjustment — no tools required
- Greasing required only two times a year

Worthington cutting units are rugged. Special alloy blades . . . steel blade support discs, electrically welded to cold-rolled steel shaft . . . oil-hardened steel lip bed knife . . . fully enclosed oil bath drive gears . . . electrically welded steel convertible frame — features like these give the Grass Blitzer the strength and durability to handle golf rough mowing day after day with the barest minimum of upkeep cost.

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**PANY, Stroudsburg, Pennsylvania**

TURING COMPANY, Racine, Wisconsin

# June Beetle, Reconditioning and Drainage Tips Offered

By JAMES E. THOMAS

The past two seasons saw our fairways at Farmington CC, Charlottesville, Va., heavily infested with grubs of the June beetle. Signs of more trouble appeared in the summer of 1946. In the fall of that year, arsenate of lead was applied to the ninth fairway at the rate of 400 lbs. to the acre; Milorganite being used as the carrier base. This application gave absolute control of the insect larva in that particular area and also sharply lessened the crabgrass population.

Last summer saw June beetle activity in this region on a scale large enough to cause injury to turf. As the price of arsenate of lead was quite high, it was decided to use the cheaper substance DDT. This was applied to all playing portions of the course at the following rate: 25 lbs. of actual DDT per acre, a 50 per cent wettable powder was used. The work was done in early October along with a fall fertilization program; for every 100 lb. sack of fertilizer placed in the distributor, 8 lbs. of DDT were added. The agitator in the hopper of our spreader did the mixing of the ingredients and apparently quite satisfactorily.

It is quite interesting to compare the action of the two insecticides with each other; DDT caused great excitation amongst the larva and within 36 hours time they rose to the surface and seemed to slowly die. This action was quite noticeable of an early morning and late evening, and continued on until cold weather set in. In contrast lead does not bring the grubs to the surface. There is no visible evidence on top of the earth of its killing action. The control takes place within the soil and is not visible to the eye.

It is too early to evaluate the final results, this season will tell the story. The dead grubs laying on top of the fairways in large numbers definitely show that there has been a very high percentage of kill, but as they were still coming to the surface when the weather turned cold, the control may not have been one hundred per cent complete. Leading entomologists say that to their knowledge DDT has a residual effect good in the soil for at least five years. The same holds good for arsenate of lead.

There are many new developments in the insecticide field, one hears of new materials coming out daily, each new substance is more powerful and deadly than the one before, with less of the material being required for a complete control and kill. Chlordane is one of the latest. It is an organic insecticide, quick killing in its action, and checks several insects that have been very hard to get at before, such as ants and mole crickets. DDT is 16 times more potent than arsenate of lead, Chlordane outranks both of them.

A review of some of the recommendations given in the early twenties for the control and elimination of June beetle grubs is quite interesting. The application of carbon bisulfide to their holes by means of a large oil can was said to be quite satisfactory. Some found a sharp pointed rod of an inch diameter useful. The instrument was pushed into the openings, and in this manner the larva was killed. Excessive watering was also used to bring them to the surface so that they could be destroyed by hand. It was also observed that in some cases heavy rolling of the sod would stop activity. The avoidance of organic dressings, such as manure was advised, and the use of inorganic fertilizers in their place was urged. All of this is just a part of what science has, and is doing for golf course maintenance. It is a rapidly moving picture, and is constantly changing.

## RECONDITIONING GREENS

Putting greens of a great number of golf courses are built on a soil of heavy tight compact clay, one that easily puddles and becomes impervious to water absorption. The top soil mix lacks enough sharp sand—if this had been added in sufficient quantities when the greens were first built, it would have helped in the removal of excess gravitational water (which is of no benefit to a plant). This in turn would have permitted more air to enter into the soil voids.

In hot weather of mid-summer an active growing root system needs air as well as capillary moisture. If this is lacking, and the earth becomes over-saturated with water you are in for all kinds of trouble; disease, algea, shallow roots, scald and finally dead turf. Grass will not grow without water, yet, if a green cannot drink water fast enough, nor inhale and

exhale sufficient oxygen it will soon die when adverse weather conditions arise. Soils must be of good texture and porous with both surface and subdrainage well taken care of. When all of this is lacking, it becomes no easy task to know what is the proper amount of water to apply when sprinkling a putting green.

The correct solution of a bad situation is re-construction. This interferes with play, also is very expensive, and is not always possible at the moment. The new aerification machines appear to be a long needed answer to this problem. They will remove soil cores from a green to the depth of several inches. This in time will permit the gradual resoiling of an area and it need not be taken out of play. It affords an opportunity to provide a change of soil composition to one that absorbs water freely, permitting it to pass to lower levels unobstructed and allows the remaining pores to become filled with air.

Last year quite a bit of grass was lost all over the country due to the conditions already mentioned; it occurs every season, but in some years is more pronounced than others. However, it was my observation that some strains of bent fared better in Virginia than others during bad spells of weather, namely: C-1, C-7, and C-28. As we had a large practice green of 7500 sq. ft. in Arlington (C-1) bent, it was decided to introduce more of this desirable grass into our putting greens. We purchased an aerifier for the purpose. The project was started in early October and four greens were planted before cold weather came along and stopped our work.

The job was accomplished in this manner: The machine was set for a cutting depth of 5 in., the old earth cores brought to the surface were entirely removed from the green, and in their place we tightly inserted pieces of C-1 sod. They were about one inch in thickness. This left an unfilled space of several inches at the bottom of each hole, which affords plenty of room for the new grass to develop a deep root system. After planting was finished, the surface was rolled with a light roller, closely mowed and then heavily top-dressed.

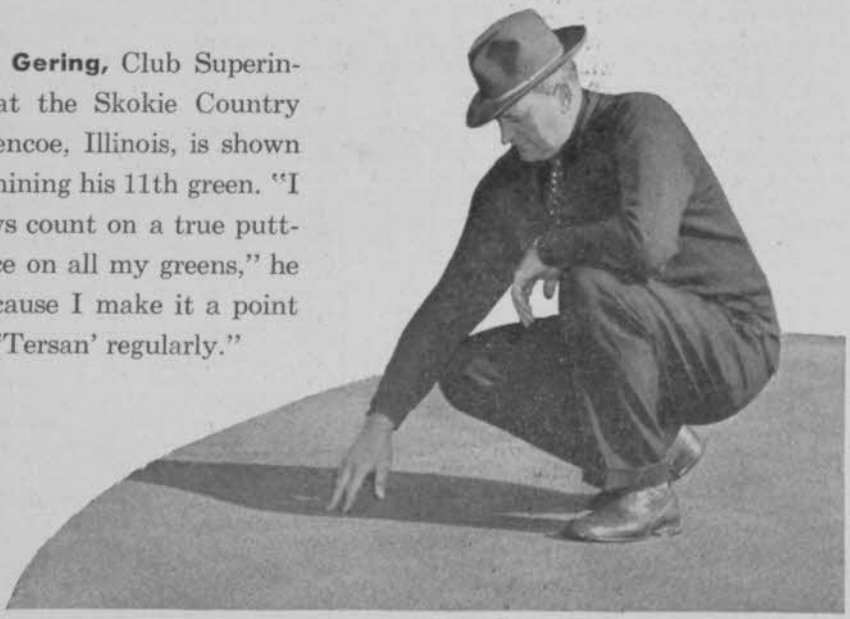
In mid-April these four greens had come through the winter months in good shape. The color and density of their turf had a mid-season appearance. The inserted bits of sod knitted in well and had extended long roots down into the core holes. These four areas have received a heavy spring topdressing and now putt as true as any green on the course. There are no signs of a heavy operation having been performed. I expect them to stand out as the best greens on the course this season.

As mentioned, C-1 was chosen because the grass was on hand in quantity. However, a C-7 and C-28 both seem to do very well in the southern bent section. The first mentioned colors up very early (a light yellow green), is more upright in growth than most bents, therefore it does not grain. C-28 forms a dense tight turf and attains its best color in very hot weather, which is a very deep green. As a matter of choice, I like the last two

University of Michigan course where USGA's first National Junior championship will be played Aug 11-14 provides a top test of golf for the youngsters.

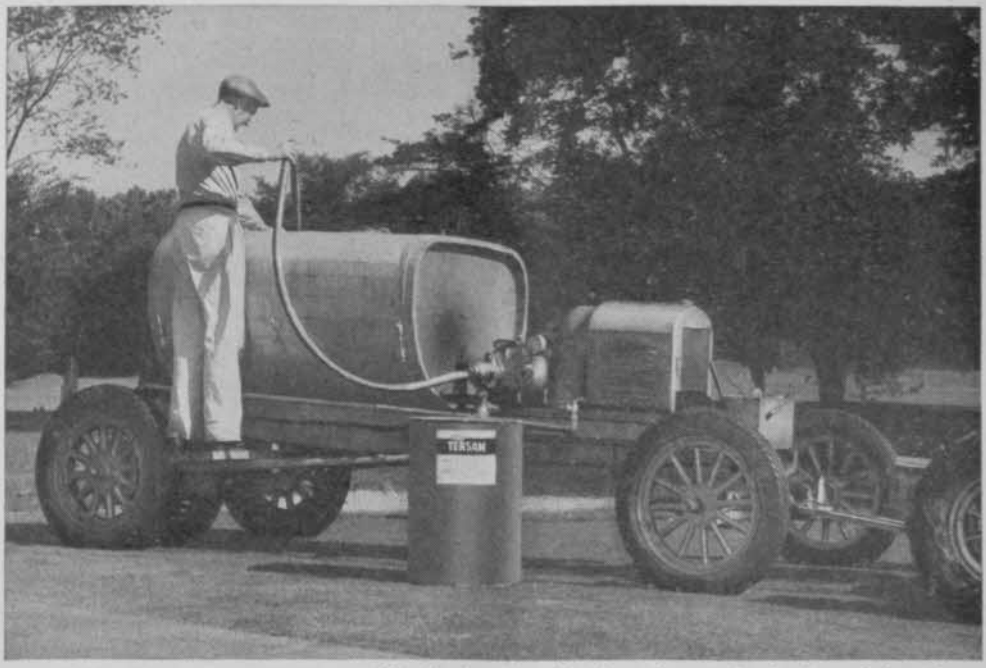
# SKOKIE protects

**Alfred F. Gering,** Club Superintendent at the Skokie Country Club, Glencoe, Illinois, is shown here examining his 11th green. "I can always count on a true putting surface on all my greens," he says, "because I make it a point to apply 'Tersan' regularly."



**A PUTTER'S PARADISE**—this superb 18th green, adjacent to the Skokie clubhouse. There is no danger of brown patch or dollar spot getting started here. "'Tersan' has been solving my turf disease problems for several years," says Mr. Gering.

# its greens with TERSAN*




**"'TERSAN' IS EASY TO APPLY,"** says Mr. Gering, "and look at the results it gives. It's safe to use, even in the hands of inexperienced help." No matter how hot the weather, "Tersan" will not shock, discolor, or retard grass growth. Elling Ellingson of the Skokie greens staff is shown here mixing "Tersan" into solution, in preparation for 18 holes of spraying.

**A VELVET-SMOOTH** putting surface on all greens at Skokie Country Club is assured throughout the season by regular spray applications of "Tersan." Du Pont offers two other turf fungicides: Special Semesan* for those who prefer a mercurial fungicide; and Du Pont F-531, a cadmium fungicide for effective dollar spot control.

*REG. U. S PAT. OFF.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strains the best, but did not have enough of them on hand to work with immediately. C-1 (Arlington) is not as pleasing to the eye (is a grayish green), but will stand a lot of wear, tear and neglect; is very resistant to disease and insects, also is heat and drought tolerant. The grass when mowed at 3/16" forms a tight and dense sod of good texture and putting surface.

The use of aerifiers open up a new field in turf maintenance. Through their use, it is now possible to resoil an area; to get fertilizers, lime, water and air down into the root zone of the growing plant. It will help to provide a deeper root penetration, will afford better drainage and prevent surface puddling, and will restore resiliency to a hard green. A little more experimentation on the part of its owners will uncover many uses for the machine on fairways, greens and tees.

### DRAINAGE

An easy temporary answer to the drainage problem, though not as effective as tiling, is vertical wells. Sometime back while reading an article by an English turf authority I ran across this suggestion for the improvement of putting green drainage. His plan was to bore deep holes through the soil until bed rock was hit. The tool used was a soil auger equipped with extension handles. These vertical cores are placed wherever water pockets occur and the surface drainage is poor.

Last season we purchased from Sears, Roebuck one of their ten inch post hole diggers and four extra extension handles. With this outfit it was possible to dig a hole 20 ft. deep.

In the late fall I decided to follow the advice of the Britisher and went about the work in the following manner: During every rainy spell I watched and observed the portions of our putting greens that held water and marked them with wooden tees. The turf was then removed with a ten inch circular sod cutter, then a hole was bored until solid rock was hit. These borings averaged in depth from ten to 20 ft. All of the old soil was removed, and the refill was with crushed stone to within six or eight inches of the green's surface. The top fill was with a porous sandy soil followed by the replacing of the turf.

Since putting in these vertical drainage cores I have watched the bad spots during periods of heavy rainfall. They still hold some water, but it disappears much quicker than before, especially so if probed with a sharp instrument.

This method is not given as a cure-all, nor is it as effective as a good tile drainage system.

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## Pro's Business Expenses In Big Increase

Pros who keep books accurately are talking about pro expense of doing business rising higher in percentage than salary guarantees and volume. Pros point out that extension in pro service has accounted for considerable increase in expenses that in many cases more than offsets net profits from increases in shop volume.

Difficulty and expense involved in getting good assistants competent to do a satisfactory job on lesson tee and in shop also is causing concern to pros. Clubs are helping more than they used to, except in cases of first class clubs where it has been pretty much standard practice for clubs to assume all or a substantial share of assistants' room and meal charges.

Pros in listing their costs of doing business list:

Collection losses on sales.
Merchandise stolen or uncharged.
Cost of own playing equipment.
Cost of own sports wardrobe.
Caddy hire.
Assistants.
Assistants' board and room.
Shop merchandise costs.
Shipping charges.
Advertising.
Postage.
Prizes.
Business entertainment.
Bookkeeping.
Buffing machines.
Club-cleaning supplies.
Repair material and supplies.
Painting of shop.
Shop furnishings.
Cash register.
Insurance on members' clubs in storage.
Insurance of shop stock.
Golf accident insurance.
Automobile use in club work.
Tournament expense.
Collection expense.
Replacements of clubs and balls (which pro has to make to retain good will, but which manufacturer may properly regard as unfair claims and refuse to allow.)
Replacement of equipment lost from bags.
Time devoted to free class lessons.
District meeting expense.
Telephone tolls.
Taxes.