

ule is possible only if there is complete collaboration by the Greens committee, Golf committee, the professional and the

ALL GREENS AERIFICATION - 1952

MAR-13		1/2" TINES	JULY-14		1/2" TINES
MAR-17		1/2" TINES	JULY-28		DISC
APR-7		3-GANG DISC SPIKER	AUG-14		DISC
APR-21		1/2" TINES	AUG-28		1/2" TINES
MAY-5		DISC	SEPT-8		DISC
MAY-19		DISC	SEPT-30		1/2" TINES
JUNE-2		1/2" TINES			
JUNE-19		DISC			
JULY-1		1/2" TINES			

(DETAIL OVER)

Fig. 1. This is a graphic record, showing regular and systematic aerification of greens. Please note: that this operation was carried out methodically at approximately two week intervals, throughout the growing season. From the above, you can see that this phase of maintenance could not have interfered with golfing activities, otherwise it would not have been tolerated.

FAIRWAY FERTILIZATION - 1952

DATE	FAIRWAY	RATE PER ACRE	NO. ACRES QUANTITY	MATERIAL	LABOR
SEPT-3	1	600 ¹⁰⁰	3 13/24	2100 ¹⁰⁰	6-10-4 4 ¹⁰⁰ 15 ^{MIN}
SEPT-3	2		1	600	1 12
SEPT-4	3		2 13/24	1525	3 3
	4		1 1/2	1150	2 18
	5		2 3/4	1525	3 3
	6		1/2	550	1 6
	7		4 3/4	2675	5 21
	8		3 1/2	1875	3 45
SEPT-4	9		3 3/4	2375	4 45
SEPT-3	10		3 1/2	1875	3 45
SEPT-5	11		3 3/4	2175	4 21
SEPT-3	12		2 1/2	1275	2 33
SEPT-3	13		1 1/4	950	1 54
SEPT-5	14		4 1/4	2700	5 24
	15		2 3/4	1475	2 57
	16		4 7/8	2800	5 36
	17		3/4	450	0 54
SEPT-5	18	600 ¹⁰⁰	3 1/2	1900	6-10-4 3 48

50^{MIN} 15^{MIN} 60^{MIN}
 @ \$19.12 @ \$59.00 @ \$1.02
 COST - \$955.00 \$895.00 \$60.00
 (DETAIL OVER)

(Fig. 2) This table is self-explanatory. The operation was carried out with the use of a ten-foot Gandy spreader.

superintendent. The prime function of the Greens committee in this situation is to see that the superintendent is not unduly hampered in the performance of his duties. The superintendent sits in on the meeting, to learn of the desires of the Golf or Tournament committee. He is happy to serve the membership in all possible ways. His work plans are flexible, and can be adapted to most any situation, providing he is given reasonable advance

HERBICIDE TREATMENT - GREENS - APRONS - 1952

DATE	HOLE	RATE PER ACRE	NO. ACRES	QUANTITY MATERIAL	LABOR
APRIL-15	ALL	1 ⁰⁰	2 1/2	2 1/2 ¹⁰⁰ Sun. Assure	10 ⁰⁰
22					
29					
MAY-6					
13					
AUG-11	ALL	1 ⁰⁰	2 1/2	2 1/2 ¹⁰⁰ Sun. Assure	10 ⁰⁰

15^{MIN} 15^{MIN} 60^{MIN}
 @ \$5.00-1 @ \$7.00-1 @ \$1.00-1
 COST - \$75.00 \$75.00 \$60.00

(Fig. 3) The above table is self-explanatory, except for record of observations which is handily kept on reverse side of table.

INSECTICIDES - GREENS - 1952

DATE	HOLE	RATE PER ACRE	NO. ACRES	QUANTITY MATERIAL	LABOR
MAY-22	ALL	6 ¹⁰⁰ 9 3/4 ¹⁰⁰	2 1/2	16 1/2 ¹⁰⁰ CHLORDANE (40%)	10 ⁰⁰
JUNE-5			2 1/2	16 1/2	10
JULY-7			2 1/2	16 1/2	10
JULY-31			2 1/2	16 1/2	10
AUG-20			2 1/2	16 1/2	10
SEPT-17	ALL	6 ¹⁰⁰ 9 3/4 ¹⁰⁰	2 1/2	16 1/2 ¹⁰⁰ CHLORDANE (40%)	10

15^{MIN} 99^{MIN} 60^{MIN}
 @ \$7.25 @ \$6.00 @ \$1.00
 COST - \$114.00 \$57.00 \$60.00

(Fig. 4) The above table is self-explanatory. Detail is recorded on reverse side. This detail explains the purpose of the treatment; whether it be for cut-worms, sod web-worms, chinch bugs or other insects.

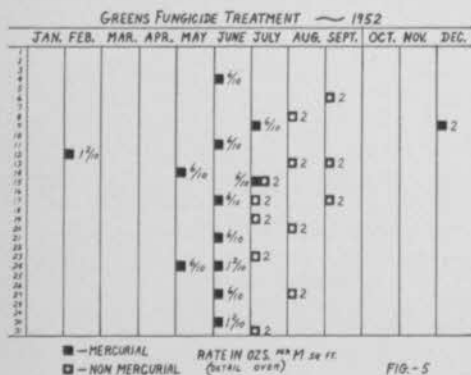
notice. If there is a subsequent change in dates, the superintendent should be so advised at the earliest possible moment.

Routine work should be regularly scheduled and planned in a manner that will least interfere with the golfer. However, an extraordinary schedule should be in readiness, to provide for high-speed maintenance during special events such as tournaments and days of heavy play. For example;—On a routine day, a seven-gang unit might cut fifty acres of fairway in eight hours; but, if a tournament were in progress, a seven-gang and a five-gang unit working together would be able to

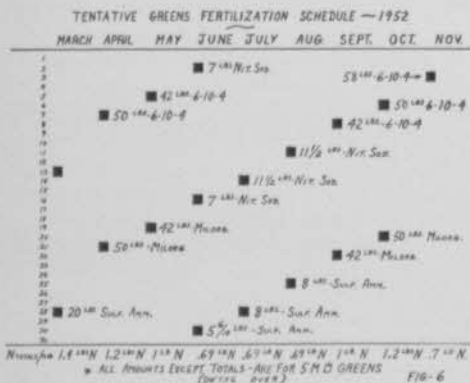
mow the fifty acres in four and a half hours. Such planning enables the maintenance crew to stay well ahead of the field. The application of this principle should be projected into all phases of maintenance.

Time Study and Cost Analysis

Time-study and cost-analysis is one of the most important considerations in these time of unstable labor. Maximum efficiency with a minimum of cost is the objective of everyone. If this can be achieved without too much fatigue of the personnel, an important point of friction between management and labor ceases to be a disconcerting factor.

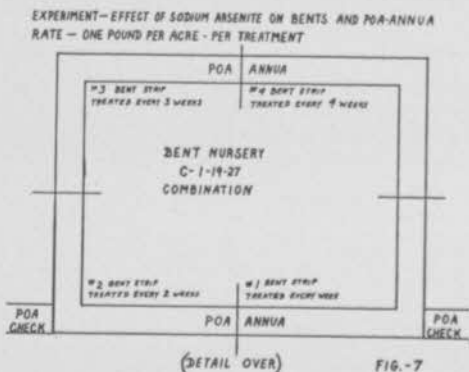


(Fig. 5) The above graphic table is an actual record, but does not necessarily imply that it represents a sound standard practice of management. It happens to be part of a comparative test. A complete summary of the findings is not appropriate at this time, but the dates of treatment are significant. Note the months in which disease is most rampant.



(Fig. 6) The above graphic table represents a well-balanced feeding schedule. Three factors worth noting: Each feeding is scheduled for a Monday, feeding is on a two week schedule, and the Nitrogen rate is reduced during the "disease season".

All maintenance techniques should be constantly studied for refinement and reduced costs. Should a more effective and more efficient method be devised, it should be photographed. Photography can be used as a most useful adjunct in our work. A picture records detail much more effectively than volumes of descriptive literature. Just think how impractical it



(Fig. 7) To determine the effect of sodium arsenite on bents and Poa annua. This drawing represents a 7500 sq. ft. nursery composed of C-1, 19, 27 bents in combination, surrounded by a ten foot wide collar of Poa annua and silvercrab grass. The three foot wide strip of bent along the outside edge of the bent nursery and the Poa annua collar form the testing area. This area is quartered. Each quarter is treated with sodium arsenite at the rate of 1 lb. per acre per treatment. The dates of treatment and results, along with all observations are recorded on the back of the drawing.

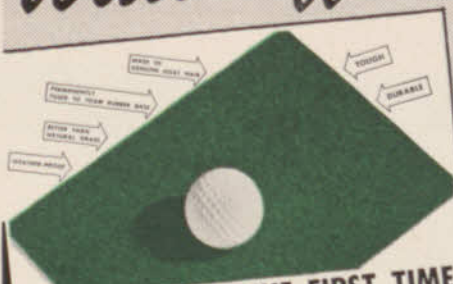
would be to describe the installation of a drain-tile in a green. Such a picture is an excellent addition to your permanent records. Koda-slides of turf research plots are almost a necessary part of the project. Some of the most effective lectures are supplemented by slides. They illustrate a point so vividly.

Keep Accurate Data

Accurate data should be kept on all treatment of turf whether it be fertilization or the use of fungicides, insecticides, herbicides, lime, watering, aerifying, top-dressing or spiking, etc. This phase of keeping records can be an endless task and a difficult one. After much study of this problem, I am inclined to believe that a system, based on graphs and tables may prove to be the most practical form. The outstanding advantage in this method is, that a graph enables you to see a whole picture in perspective. Of course, all records are not adaptable to this method, but graphs and tables should be

(Continued on page 74)

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Hogan's Shop At Tamarisk

WHEN the Tamarisk club at Palm Springs, Calif., hired Ben Hogan as professional they got a man who is a keen observer, an idealist and who has expertly inspected many courses and pro shops.

Ben worked closely with Billy Bell, architect of the course, in determining design that would be a fine and varied test of golf in championship play as well as a pleasant course for the average player.

The pro shop Ben wanted was a layout that would have a lot of class and be shrewdly, accurately fitted to membership that would buy rather than have to be sold. With the club having the pro shop concession and paying good salaries to the shop staff, comprised of Hogan, Stanley Kertes as teaching pro, and Pat Martin as resident pro, the policy of accent on atmosphere in the shop could be carried out without the necessity of merchandising volume and profit, which is a

paramount factor in most pro shop operations.

The shop is connected with the clubhouse by a breezeway and the architectural element of a great deal of glass as wall construction of course makes the shop brilliantly lighted. This lighting of course shows the merchandise in the same way it looks when in use in the sunlight, and that always helps selling.

The flooring in the pro shop is the same as in the rest of the clubhouse; wool carpeting with a thick rubber matting underneath. Thus far there are no signs of undue wear from spiked-shoe traffic and those responsible for the installation declare it will wear well over the years.

In the view which shows Kertes by the circular display rack for clubs and Pat Martin behind the counter, there will be noticed glassed-in space that is Hogan's office. That's a de luxe arrangement for a golf businessman. There's a bright red



carpet and Hogan's specially-built kidney-shaped desk is a handsome onyx-topped job.

The cases in the shop were designed by Hogan. The cases have storage space in the lower section, facilitating service and frequent changes of display of the merchandise being shown.

At the left of the view which shows part of the course there will be seen a shoe case, with a couple of pairs of shoes on top. Back of that case is a shoe fitting chair and a good stock of shoes on display and conveniently stocked.

Hogan limits his stocks and displays to very high grade merchandise. The character of the operation at Tamarisk allows a smaller stock than would be advisable at most pro shops and makes a strong point of quality only, regardless of price. Something else that figures in the operation is that Hogan, Kertes and Martin are so insistent on exact fitting of clubs that they can tell a prospective buyer he or she will have to wait until something that precisely fits the purchaser's requirements is ordered—and the buyer will wait.

It will be noticed that full sets of woods

and irons are grouped in displays (except in the revolving rack for putters and specialty clubs). Hogan's idea on this is that the woods have to be fitted to the irons and vice versa, and that buying new clubs means buying a new set in the majority of cases. With membership and guests such as Tamarisk has, that general selling policy can be maintained to the complete satisfaction of the purchasers.

The practice and lesson tees, and back of a palm, the elevated 9th green, will be seen. Although Hogan rarely gives lessons he can see what's going on at the practice tees and from his observations provide members with helpful tips. Kertes has the lesson assignment and Martin manages the shop service, in the Tamarisk table of organization.

The intercommunicating system, with transmitting and receiving box shown at the left of the counters, is a valuable item in smooth running of the shop and quick supplying of caddies.

Need Supplies — See page 93

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Lincoln Park Golf Club
Oklahoma City, Okla.



How to Plan Fertilizing Work for Best Results*

By L. R. SHIELDS

Supt., Woodmont Country Club, Rockville, Md.

Fertilizing turf grasses is one of the most important tasks assigned to the golf course superintendent. Grass is essential for golf—fertilizer is essential for grass. Golf is played on grass and if the fertility level of the soil is not kept up by the addition of plant nutrients, the grass thins out and weeds take over.

One of the easiest ways to improve turf is thru the use of fertilizer, applied at the right time in sufficient quantity and in an efficient manner. It is less expensive than seed, disease control chemicals, renovation or resodding. One well-fed grass seedling holds more promise of good turf than a dozen without plant food. There is no substitute for a good fertilizer program wherever the preservation of turf is the objective.

In contacts with people unfamiliar with golf course work, all too often when the word fertilizer is mentioned, they immediately think of the kind that is found in the barnyard. No doubt some green chairmen think the same. When I use the word fertilizer, I am not referring to that variety.

Fertilizing Turf Grasses

How much? When? For what reason? I'm going to reverse this and start with "for what reason". No one would use valuable fertilizer of any kind in any amount or at any time without a reason. The reason for fertilizing is to feed the grass. There are others also—such as to bring out color, firmness underfoot, soil erosion prevention, faster heal after disease attacks, weed control and to improve the soil condition by the additional root activity. But, these are benefits and will come naturally if the grass is well fed. So, if the grass needs plant food, and it almost always does, we have a reason.

When is very important, not only for the grass, but also because a golf course superintendent is needed to decide when and to plan and work out the details in advance of application.

Some of the factors determining when are as follows:

When the Green Committee oks the purchase of the material

When storage space is ready for delivery

When the material is delivered

When the soil Ph is right. Someone once said—to fertilize before PH has been corrected is like trying to shave before applying shaving cream. The Ph must be right in order to gain maximum benefits.

When you can find a man to do the work

When you get a truck ready to haul it to the spot

When you have taught a man how to apply it

When the play is not too heavy

When there is no big tournament coming up next day

When it is not too hot—too cold—too wet or too windy

If on a green—

After it has been mowed

After the material has been mixed with soil

When the amounts have been decided upon and measured out

When a reasonable length of time has passed since the last application

When the water system is in good order

When a man can be found to water it in

When he can find a hose and a coupler

When he can get to the green

When he has been taught how to water

If on a tee or fairway—

When the grass isn't too long

When the tractor driver comes to work

When the tractor has been serviced

When the spreader is in good working order

When a helper can be found to work the spreader

And if possible when the weather man promises rain the next day

This sounds like a list of alibis for not getting the job done, but golf course superintendents realize that it is more a list of things that not only make fertilization

*Paper presented before GCSA annual Turf Conference

difficult, but also make our jobs necessary. All except those influenced by weather are within the control of the superintendent and are overcome by his careful advance planning.

When will stop a man who is looking for an excuse not to get the job done or the fellow who says—"I'll do it tomorrow". Progressive superintendents are always on the lookout during the growing season for an opportunity to apply fertilizer.

How Much — for greens

The nitrogen analysis on the fertilizer bag is the dollar sign on the bag because nitrogen is the most expensive element. It's also the most vital element to us because it produces leaves and the leaves, our most important crop, we cut off and take away. The other elements — phosphorous and potash — for the most part remain on the green and only require secondary consideration. Therefore, the management of fertilizer is the management of nitrogen. But, as I understand it, there is no reliable soil test for available nitrogen, so here's where the superintendent's knowledge and experience is necessary to judge the need for nitrogen. The things he looks for are thin turf, slow rate of growth, the presence of weeds and clover, and that off-color yellow we all dread for sometimes the warning comes too late to save the plant.

Six to eight lbs. of actual nitrogen per year applied at regular intervals during the growing season is my goal. One-half inorganic for fast growth, one-half natural organic for slow uniform growth.

On my course we work from pails at all times, and to make it easy for my men and myself to keep track of the nitrogen as it is applied, I determine the amount of nitrogen contained in a 12 quart pail by finding the number of pails of fertilizer in a 100 lb. bag. Then, divide that figure into the nitrogen analysis given on the bag to get the amount of nitrogen in each pail. After determining that amount, we mix the fertilizer in bag lots with an equal amount of soil by volume. In this way we are always reasonably certain of the amount of nitrogen in each pail. The top soil, — prepared top dressing— is merely a carrier to help keep the fertilizer dust from blowing away. I also believe it cuts down burning, because the fine particles of fertilizer stick to the soil particles and are carried down between the grass leaves instead of sticking to them or being blown about.

When to make the first application in the spring is a question that has been debated for years and is a good one to talk about if you have lots of time for talk for everyone has a different idea. On my course, I prefer sometime soon after April 1 and I like to start with one lb. of actual nitrogen per 1000.

I wait two or three weeks for the next application, depending on whether or not I can line up the limiting factors. This time another pound per 1000 can be put on without burning. In two weeks, say about the first of May, another pound can be applied using the same mix. After that, two applications at two week intervals are made at $\frac{1}{4}$ lb. per 1000. This adds up to 5 applications for a total of $3\frac{1}{2}$ lbs. actual nitrogen per 1000 put on greens during the spring.

Fertilizer won't cure all your turf problems, but it will make some of them easier. Consider the disease problem for instance. It is well known that fertilizer practices have an influence on the frequency and amounts of turf diseases. It has been proven that too much nitrogen as well as too little increases dollar spot. I believe too much is better than too little, because then the grass is growing and will recover quicker. Too much nitrogen in summer also increases large brown patch, but here again I think a little too much is safer than not enough, because healthy turf is more resistant. The superintendent must decide when to ease up on the nitrogen in hot weather.

It's difficult to apply too much if all the factors are in line and if these basic rules are followed.

- (1) Don't apply more than 1 lb. nitrogen at any one time.
- (2) Feed one half organic and one half inorganic and feed often and in small amounts during the summer.
- (3) Don't fertilize heavy at intervals less than two weeks apart.
- (4) Use a complete fertilizer.
- (5) Apply evenly over the entire surface.
- (6) Water in afterwards.

In July and August I use a small amount of liquid fertilizer because it is easy to apply and gives me that peace of mind that goes with the knowledge that there are elements of plant food in the soil. A couple of gallons added each time the sprayer goes out will not over-stimu-

(Continued on page 76)

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—August Schnatzmeyer, Bellerive Country Club, Normandy, Mo.

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—Ralph Guyer, Westborough Country Club, Glendale, Mo.

These reports from golf course superintendents at courses in the St. Louis area are another in a continuing series of "experience reports" from leading courses across the country.