

How to Plan Fertilizing Work for Best Results*

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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

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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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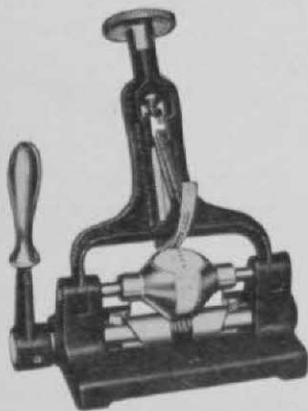
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no control have caused the loss. These extenuating circumstances would be the most thought-provoking revelations if ever brought to light. It would astound club officials in general, to be bluntly shown how they are responsible for a sure and rapid degenerative process that is taking place in the field of turf management. Such a topic is not in order at this time, so, let us continue with golf course records.

The accompanying graphs, although they are actual records, do not necessarily represent a standard of form to follow. They merely illustrate one method of maintaining records. In conclusion, let me reiterate: Make your records serve a definite purpose, whether it be to meet the requirements of club officials or to provide reference material for yourself. In any case, you will become more proficient by maintaining well-kept golf course records.

HOW TO PLAN FERTILIZING

(Continued from page 49)

late. I have not kept track of this nitrogen because it is such a small amount. There is another reason too—I don't know how to figure gallons into pounds.

After Labor Day it's time to start thinking about "When" again and getting ready for the fall program.

This takes some time usually because of the heat and I consider myself lucky if I can get a small amount on before the first of October. The quantity can be increased up to one pound per thousand per application as the weather gets cooler. By the end of October, 3 lbs. have been applied. Just before cold weather and before the last mowing, I like to feed 1 lb. all organic nitrogen, which, by breaking down slowly, helps to feed the roots over winter. The last cut is made without the grass catcher on the mower so as not to pick up any of the material. This makes 4 lbs. of nitrogen used during the fall for a total of 7½ lbs. for the year plus a small amount put on in liquid form and by the use of cyanide in top dressing. All material used on greens is broadcast by hand from pails. With a little practice a man can start on one side and make a pail of mix cover the entire green evenly without running out two-thirds of the way across. We divide the material and crisscross the green in as many directions as there are pails to be applied in order to assure even distribution.

I don't believe in the use of straight inorganic nitrogen except in certain cases,

such as greening up for a special tournament or to heal the spots left after a bad attack of disease. If it is used, leaves are produced at a greater rate than the roots can keep up with, since roots normally grow slower. Evidently the roots must need additional food also, or the tops wouldn't show signs of needing food. Tops and roots would be in proper balance. If the tops are forced, there is going to have to be a period of rest for that plant. After exertion all life must have time for recuperation. I've seen cases where sulphate of ammonia is used alone all summer. The grass looks good, but then in the fall when it should start growing again it will not respond to anything. It is resting. It is like the fellow who runs uphill. He is sooner or later going to have to take a rest. I prefer the regular use of a well-balanced complete fertilizer so that all elements of plant food are present at all times.

On fairways and tees the same general rules apply, but we don't have to be as careful as on greens because the grass is longer and isn't so apt to show burn. I like from 800 to 1200 lbs. to the acre every fall but don't always get it because of the budget. This amount is broken up

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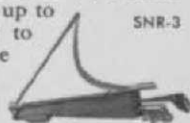
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into two or three applications and I like to use some organic if I can get it. Some of the fertilizer, if applied after aeration if possible, has a better chance to stay put on the slopes. Except on Bermuda turf, I'm not much in favor of spring fertilization unless for some reason it was impossible to put it on the previous fall. I don't like to use heavy applications of nitrogen fertilizer in spring. Anything will grow in the spring because of ideal weather and because of the natural elements of plant food that have accumulated in the soil over winter while the plants were dormant. To add to this natural fertility is apt to over-stimulate and bring on the rest period that must and will follow—the fellow running uphill again.

In the few cases I know of where fairways were over-fertilized, in each it was due to spring fertilization. Charlie Hallowell says spring applications of nitrogen fertilizer are not helpful in maintaining a dense fairway turf in June, and in my

experience I have found this to be true. I also believe spring applications are more favorable for weeds and crab grass because they are growing vigorously at that time. However, spring and summer applications are necessary for Bermuda turf.

I prefer to start my fairway feeding program early in September. This may be a little early since crabgrass keeps growing until the first frost which is around the middle of October, but I have found I must start early in order to get the job done. I feel that by encouraging the permanent grasses to spread and occupy space left by crabgrass, I have gained. Since no two things can occupy the same space, there is less space for the germination of crabgrass seed the following year.

I have intentionally skipped lightly over tees and fairways. Amounts as I see it are not too important. Any amount from 800 to 1200 lbs. per acre evenly distributed is good. The most important thing is to get it on and get it on at the right time. I believe too much fertilizer is stored in the shop over winter. If I have fertilizer I don't like to keep it in the bag. I like to get it out on the ground where it will do some good. Ruben Hines, an old friend of mine in the Washington, D. C. area, once asked me if I had any fertilizer. I said sure I have 1000 lbs. of fertilizer—wouldn't be without it. He said, "What are you keeping it for? It won't do any good in the barn." I have thought of that a great many times and I believe it has helped a great deal. I has become a sort of motto with me and it's a thought I want to leave with you. Don't keep fertilizer—use it.

Northeastern Wisconsin Holds Operations Clinic

Annual meeting and golf club operations clinic of the Northeastern Wisconsin Golf Assn. was held May 11th at the Oneida Golf & Riding Club, Green Bay.

The clinic featured four seminars, one for presidents and secretaries, one for club managers and house committeemen, one for superintendents and greens chairmen, and one with the professionals and sports committee chairmen. Each seminar featured an outside speaker discussing an aspect of club operation.

At the annual meeting it was agreed that all NEWGA clubs will use the USGA (current) handicap system. M. A. Carroll of Oshkosh was re-elected pres., Robert Testwuide of Sheboygan was re-

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