



NEWS LETTER

*The world is blessed most by men who do things,
and not by those who merely talk about them.*

—James Oliver.

MARCH

1935

This NEWSLETTER is published monthly by the Greenkeepers Club of New England, and sent free to its members and their Greens' Chairmen. Subscription price ten cents a copy, or a dollar a year.

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MARCH MEETING

The March meeting was held at the Hotel Statler, Boston, on March 4th. The speaker for this meeting was Prof. J. W. White of Penn. State. Prof. White gave an interesting talk on various "Turf Problems" which confront the greenkeeper. He mentioned the fact that the 7th Greenkeepers' Conference at Penn State had been just completed. He has noticed a remarkable change in greenkeepers in this last seven years, with the fear of competition and timidity of a few years ago now broken down.

It would be ideal to get green chairmen together and tell them of the problems which the greenkeeper has to solve, some of them almost impossible, and to tell them what conditions are necessary to grow grass best, that grown as it is for greens, it is artificially stimulated so that it is merely a protein body.

The soil is the most complex thing on earth. A gram of fertile soil will contain a hundred million micro-organisms. These are divided into groups; one breaks down the organic matter, giving off carbon dioxide; another deals with the transformation of Nitrogen, converting it from the protein form to nitrate form; another group is the Nitrogen fixation group, of especial importance to farmers.

Any treatment which will stimulate the micro-organisms, to make them multiply and more active, will stimulate the crop above. The plant is dependent upon the micro-organisms, and they in turn are dependent upon the plant. When the micro-organisms cease to function, all life ceases. The plant above ground is dependent on the carbon dioxide given off by the micro-organisms below.

Micro-organisms are very small, about a hundred million equal a small grain of sugar in size. They may be classed as either bacteria or fungi. A neutral soil has about 80 million bacteria and 20 million fungi; when soil gets acid bacteria go out and fungi come in. Nitrification ceases to some extent with acidity. This shows that the theory by which the soil is made acid in order to control weeds is the wrong way to approach the problem. The most vigorous grass is on soil with a pH of between 6 and 7. Weed control should be by vigorous growth of grass to crowd out the weeds; there has been found to date no plan to grow grass and not grow weeds.

The limiting factor under the sod is nitrogen, because the bacteria are utilizing roots as their source of energy, for every so many parts of carbon they need some nitrogen. Anything that further decreases the nitrogen supply will affect the grass.

Prof. White also described some experiments he has been conducting to determine the effect of mercury on these soil micro-organisms and also the effects of arsenate of lead. Lead is not injurious to nitrification as far as experiments show. Lead, mercury and silver are the three metals most injurious to life, will probably destroy plant cells; hence, the lead causes trouble more than the arsenate probably. The effect of bichloride of mercury on soil nitrification was marked, especially where the soil was acid.

A mixture of cottonseed meal or milorganite and sulphate of ammonia is being used on some Philadelphia courses. Grass too much stimulated is nearly all protein, should have time to assimilate other elements. Each grass has its own ability to assimilate various amounts of the various elements.

Subsoil drainage will overcome some difficulties in greens; too much water will retard nitrification.

The most important problem is to keep physical conditions right. Know the exact area of all greens; then apply as directed, do not overdo; keep careful records of everything done on greens and the results.

Get the general recommendations from research men. The men of science need the men of art, (the greenkeepers) and the greenkeepers need the scientists.

A discussion period followed Prof. White's talk.

SPRING FERTILIZATION OF TURF

by Frank H. Wilson, Charles River C. C.

Perennial grasses make a new set of roots each year, or in other words, the roots are annual. This growth of new roots starts soon after the frost is out of the ground and the soil drained of standing water, and is accompanied by the greening of the grass. If at this time a piece of turf is dug up, it will be found that new white roots are being made in the top inch of soil. From old grass plants come new plants formed by buds on the root stalks. These also will be found to be making new roots. The time of this process of making new roots varies from year to year with the earliness or lateness of the spring. The period of greatest root growth in our locality is probably from April to July. The depth of root systems depends somewhat on the kind of grass but more on the kind of soil; looseness, richness and dryness in a soil induces large root systems; while poor, compact, moist soils tend to restrict root development.

The time of applying fertilizer in the spring depends upon the growth of roots of the turf. It should be timed accurately to avoid waste of soluble plant food.

The most common cause of poor turf, especially in fairways is lack of plant food. Generally the element least abundant is nitrogen. A plentiful supply of nitrogen promotes the growth of leaf and stem. Grass being a foliage plant, requires an abundance of nitrogen. Phosphorus is a necessary element for plant growth, is found in large amounts in seeds and seedlings and it has been noted that as the plant matures, phosphorus migrates from the mature stems to growing tips and to seeds, thus affecting the maturing of the grass. Potash is found in larger amounts in stems and leaves than in any other parts of the plant. A lack of it produces a weak brittle growth, an excess amount prolongs the period of growth and delays the maturing of the grass. It is essential to cell growth, seems to enable plants to withstand more effectually attacks of fungus diseases. An excess amount favors the growth of clover. In like manner the action in plants of Calcium, Magnesium, Sulphur, Iron, Chlorine, Sodium, Silicon, Carbon, Oxygen and Hydrogen

might be described. Times were when these thirteen elements were all that were considered essential for plant growth. Research in medicine, foods and more efficient methods of chemical analyses has led scientists to list twenty or more plant food elements. Leading fertilizer concerns stress extra plant food by which they mean the addition to fertilizers of these "rare" elements which plants use in small quantities and which seem vital to their health. Some of these rare elements found in the ash of plants are Boron, Barium, Iodine, Copper, Bromine, Fluorine, Selenium, Tellurium, Antimony, Tin, Titanium, Lithium, Rubidium, Strontium, Zinc, Silver, Mercury, Lead, Aluminum, Shalium, Chromium, Manganese, Cobalt and Nickel. Grasses may not use but few of these, it however, has opened up an interesting field of research.

In the spring the ground is cold. Bacteria necessary for decay are most active between the temperature of 45° and 99° Fahrenheit. In fact the bacteria are ten times as active at 99° as at 45°. Also bacterial growth is retarded by an acid condition of the soil. This brings up the problem—Shall an organic or an inorganic fertilizer be used at this time of year? Taking into consideration the above facts it can readily be seen that an organic fertilizer which has to decay before its plant food is available, is more apt to feed weeds in July than grass in April and May. On the other hand inorganic fertilizers which are readily available are immediately taken up by the roots and if in sufficient quantity, produce by the end of June a thick turf in which weeds find a hard time to get a foothold. The clover problem may also be partially solved. A cold wet spring brings with it ideal conditions for the growth of clover. A soluble fertilizer fed to the grass at that time enables the grass to compete with the clover and drive it out.

Soils abundantly supplied with organic matter hold water and plant food soluble in water in a form easily available to plants. Soils poorly supplied with organic matter retain soil moisture but a short time and plant foods in solution are soon lost. Feeding turf on the former type with an inorganic fertilizer in the spring is ideal. On the latter type of soil a heavy fertilization in the fall with an organic is better practice.

A fertilizer containing part of its nitrogen in organic and part in inorganic form works very well, as the organic breaks down as the soil warms thus feeding the turf for a longer time than when an inorganic is used alone. Such a fertilizer for spring use should be carefully planned using a proportion of about one third the nitrogen from an organic source and two thirds from inorganic. Two or more organics of different availability should be used, which will follow after the soluble inorganic nitrogen without any lapses. The soluble nitrogen in the inorganic also hastens the bacterial action in the organic making it more quickly available than when used alone.

The fertilizer formula for growing grass is important. An abundance of nitrogen, a good amount of phosphorus to maintain the roots, rootstalk and stems in a healthy condition, and a small amount of potash is necessary for healthy growth. From the demonstration turf gardens we obtain the information that generally a 6-12-4 inorganic fertilizer gave the best results. This formula may be modified to satisfy soil conditions to a 7-5-2, 8-10-4, 8-6-2, etc., or whatever fits your needs. Personally I use a 8-6-2 partly organic and partly inorganic using extra phosphorus in the fall in the form of acid phosphate. We have South German Mixed Bent and use velvet for turf work on the greens. From data obtained from the demonstration garden, plots rich in phosphorus seem to contain the most velvet bent. It is necessary for each greenkeeper to work out his own needs. The amount of fertilizer to apply is also a personal knowledge of the needs of the soil and the particular grass or grasses being grown. In the United States Golf Association Green Section Bulletin for May 1931, in an article "The Use of Fertilizers on Putting Greens" appears the following facts: In 1931 from June 1 to November 1 grass clipping, from some of the better-treated putting green plots at the Arlington turf garden, were weighed and analyzed. The results obtained from these observations at Arlington would indicate that the amount of field dry material removed from 18 greens totaling 90,000 square feet would be about 4 tons containing approximately the following equivalent amounts of plant foods, nitrogen as obtained in 2,000 pounds of sulphate of ammonia; phosphoric acid as obtained in 200 pounds of 20 percent acid phosphate; and potash as obtained in 400

pounds of 50 per cent muriate of potash. These figures should not be used as a basis for building up a complete fertilizer for putting greens, as various conditions, such as soil, climate, and season would influence the result. They do, however, indicate the goodly amount of plant food that is removed in clipping from greens during a single season. With a knowledge, of soil condition, the amount of plant food in the compost used, the kind of grass to be fertilized these figures should be helpful in planning a fertilizer program.

Each golf course is a problem of its own, and often each green. What is one man's food may be another man's poison. Recommendations at the best can only be general and the few remarks which I have made above may, I hope, help some one.

Report on Seventh Annual Short Course in Turf Management Conducted at Rutgers University, New Brunswick, N. J.

For the seventh consecutive year, a one-week intensive course in the principles of turf management for golf courses and lawns, was conducted by the College of Agriculture, Rutgers University, February 18 to 22 inclusive, 1935. There was an attendance of 22, of which 14 were from New Jersey, and 8 from other states. Various groups were represented, including greenkeepers who were present in greatest number, golf professionals, seedsmen, and landscape architects. Instruction was provided by the regular staff members of the College of Agriculture and State Agricultural Experiment Station, under the leadership of Howard B. Sprague, Agronomist. At a dinner held the evening of February 22, which brought the course to a close, certificates of attendance were presented by Prof. F. G. Helyar, Director of Short Courses, and Acting Dean of the College of Agriculture. Speakers for the group in attendance expressed their appreciation for the information obtained, and its practical value.

The Fourth Annual Greenkeepers Short Course was held at Iowa State College on March 4th and 5th. Among the speakers were O. J. Noer, Kenneth Welton, Leo Feser, and others prominent in the greenkeeping world.

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RECREATION CONFERENCE

The second annual Recreation Conference was held at the Mass. State College on March 15-16-17, with programs in several sections, including Golf, Forestry, Hunting and Fishing, Community Recreation, Winter Sports, Archery, Camping, and Hiking, with also considerable attention being paid to Hobbies.

The program in the Golf Section included addresses by the following:—"Fingerprinting Grasses for Identification" by Miss Elfriede Klauke, "Golf Clubs and Winter Sports" by Charles L. Parker, "Necessary Soil Organisms and their Functions" by Prof. Jay L. Haddock, "Public Fee Courses Benefit Golf" by Homer C. Darling, "Pink Spot and other Turf Diseases" by L. E. Erwin, "Golf Course Maintenance as Affected by Major Tournaments" by Howard D. Farrant, "Municipal Golf Courses and their Relation to Community Recreation" by Alfred T. Comstock, "Turf Maintenance" by E. E. Evaul, "The Prevention and Cure of Brain Patch in Greenkeepers" by Herb Graffis, "The Club, Greenkeeping, and the Research Worker" by Guy C. West, "The Unavailable Water in Peats" by Richard Mansfield, "Speed in Golf Course Maintenance" by Roland Sturtevant, "Winter Injury to Turf" by Prof. L. S. Dickinson, "The Full Use of Golfing Areas and Golf Clubs" by Charles E. Mason, "Golf" by Jack Mackie, "Prevention and Cure of Brain Patch in Greens Committees by Herb Graffis.

Space in the NEWSLETTER does not permit us to reproduce in full all of the above addresses. Resumes of several will be included as space permits.

The Exhibition of golf course machinery and supplies including seed, as well as other recreation exhibits was even better than last year's exhibit, and attracted large crowds on each day of the Conference. The crowds, even more the intense interest, and the spirit of those present, were ample proof that there is a need for such a Conference yearly, and we take this opportunity of adding our plea to the Mass. State College to indeed make this Conference a yearly affair, and to voice the hope that the Massachusetts Legislature will soon wake to the need of funds for turf research, and appropriate the funds needed.

Included among the exhibits were fine exhibits by the Connecticut and Northeastern New York Greenkeepers Associations, and large delegations of members of these associations were present. The usual large numbers of our members were also present, and our exhibit efforts were largely confined to a Greenkeepers' Headquarters.

GOLF COURSE MAINTENANCE AS AFFECTED BY MAJOR TOURNAMENTS

by Howard D. Farrant

(Read at Recreation Conference)

There are many varied opinions as to the type of course best suited for a Golf Championship and I therefore shall not try to argue this point, but shall confine my remarks to steps which we took at my course, The Country Club, Brookline, to prepare for the 1934 National Amateur Golf Championship.

When we first received notification from the U. S. G. A. awarding us the Amateur Championship for 1934, my Greens Chairman immediately called me into conference and explained at length his ideas of the steps we would have to take to put our course in as good a condition as possible. I think you gentlemen will be interested in a point that he stressed. To quote him as nearly as I can remember, he stated that the putting of our course in good playing condition should not be confined to the condition of the putting surfaces, because the condition of the rest of the course was equally important. To explain what I mean, we considered it necessary to measure the depth of sand throughout every trap so as to make sure there were no hidden stones or rocks that would interfere with an explosion shot; that the banks of the traps should be carefully scrutinized so as to eliminate any holes where balls could come to rest in a practically unplayable lie. We then looked at the greens from various angles to make sure that there were no branches overhanging any green which would unfairly interfere with an approach shot played from a drive which was slightly off the line. Branches in close proximity to traps were also eliminated so as not to interfere with the back swing. I mention these few examples to show

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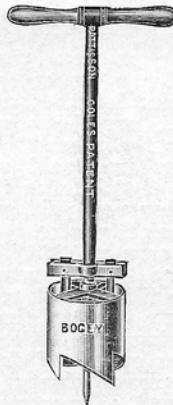
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how carefully we went into detail and to prove that the job of a Greenkeeper in preparing for a championship is not one alone of getting his greens in condition. Certain changes were made on the course during the past few years but please do not misunderstand me—these changes were not made for a large tournament, but were made to meet up with the times. The long flight of the new golf balls was one reason. Another—the demand for accuracy on the course. All meant that the standard of golf to-day is materially higher than ten years ago; also, that to keep within an average labor cost, we must eliminate and make additions where necessary to keep up with the trend of time. I think, possibly, a good way to make clear what I mean would be to subdivide the work to be done into different headings as Tees, Fairway and Rough, Traps, Greens and Miscellaneous.

Tees

When a club is having a large tournament, naturally they want the course to play long. Length seems to be a big factor and some clubs have gone to great expense by building new back tees, and they are used, at the most, a very few times, because the average player cannot get enjoyment out of the back-breaking drives he must get, and seldom does. There is, of course, this angle—that the clubs with these back tees are fortunate to have all this spare land, but with the way things have been, the up-keep must cost something and it is the cost that clubs now think of first. So at The Country Club, the tees are where they have been for years, except that one or two were moved right or left for a better line of play. We could not lengthen the course on account of our boundary lines, but even had we the room to do this we would not, as we could see other ways and means of tightening the course to make one play real golf and still have our up-keep at the same cost. Our tees during the season of 1934 had the same treatment as other years. That is, they were fertilized and top-dressed twice and cut two or three times each week. During the National Amateur, each tee was roped off fan-shaped, allowing the player plenty of room and protecting the spectators from a pulled or pushed tee shot. Tees were roped off a few days before the start of the tournament and remained so until the last day. In roping off the

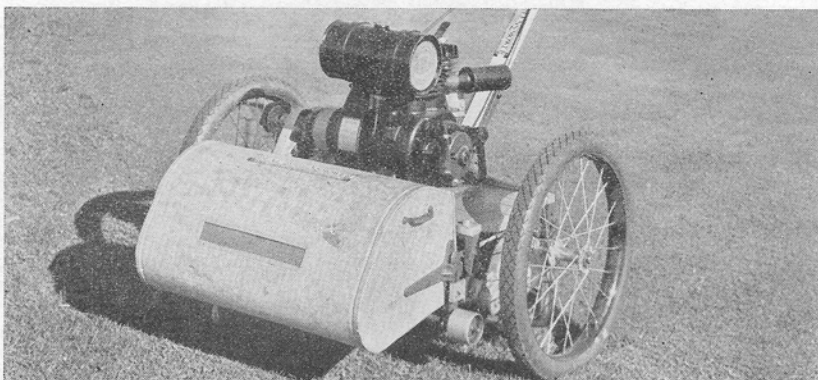
tees we used 800 iron stakes and 12,000 ft. of rope, which is purchased by the club holding the tournament from the club who had the last tournament. During the week, section men in their sections were responsible to have these ropes in a tight and neat condition. Tee markers were changed whenever the wear and tear demanded a move, and would say the average on each tee was from half way on the tee to the back.

Fairways and Rough

Fairways and the rough in our mind you can do a lot with to make your course play hard. Not many years back most fairways were cut with a nice long line generally quite straight, as wide near the green as it was near the tee, and often with a nice spread of fairway all around the green. We would say on a public course this naturally would be fine, but for a real test of skill, which a good golfer has, under these conditions he could play most anywhere, so for the past few years we have given this considerable thought, and by allowing width where it is needed and making all our approaches very narrow we have demanded more accuracy from the player. In some places we have cut new lines altogether on a fairway so as to make some traps which we did not care to move come into play. In one case, a perfectly straight hole was cut so as to make a slight dog leg to use traps built years ago, and the rough along this particular hole is such that you will want to follow the fairway. It is not only to make the course harder to play, but the appearance of a winding fairway leading up to a bottle neck green in our mind makes one feel a little more golf-minded. Our rough we have cleaned the past few years so that we cut most of it by tractor, but it has meant a lot of work in moving stumps, rocks, ledges covered, open drainage ditches tiled, bad holes filled and trees limbed where needed, so with any large tournament coming along, a four or five weeks growth of the rough calls for more skill from the expert player than the average shallow trap. Of course with a gallery around, after a few days it is pretty well trampled. In the fall of 1933 we concentrated on the weak spots in fairways, and with the fairway watering system installed that fall, 1934 showed a big improvement in the turf. Fairways had their fertilization and



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were cut two or three times each week. The only unusual thing about fairways the past season was the running of a white line in the rough on three holes. Two of these lines were for the marshals to keep the gallery behind, the other was an out of bounds line where before we only had stakes. During the tournament our fairway cutting was done early and late—that is, starting early in the morning, both tractors cutting with seven units would start, one on number one, the other on number two hole and keep going forward until play had caught up. They would then jump to the 17th and 18th fairway and work back until stopped by play. Fairways left uncut were finished later that day, and at no time was there any night cutting of fairways, tees or greens.

Traps

It used to be said if you had a lot of traps you must have a hard golf course, but we all feel quite differently about it now, so we have been filling traps all over the championship course. In 1929 we had 185 and we now have 111, and we are still considering eliminating a few more. Some of these filled traps were old cross bunkers and many of them were never used. The old traps were pretty much the same shape, usually with a nice even edge. To-day our traps are of all shapes and sizes, and most of them are with the steep face towards the green, and with a grass tongue cut in somewhere along the faces to eliminate the player walking up the face of the trap and leaving foot marks. We did not eliminate these traps for the National Amateur, but for the benefit of our Members and to save on our up-keep. We were particular about the depth of sand in each trap, and this was hauled in the previous winter.

Greens

The Greens at The Country Club up to a few years ago were quite large, but we have controlled that by reducing the number of square feet on the putting surface by pulling the traps in closer, rounding square corners, curving straight lines, so that the appearance to the eye, when you play a shot to the green, makes you think where you would like to be, not just shoot away and figure you will be near enough. We felt by changing these lines and pulling the traps in, that we made our players

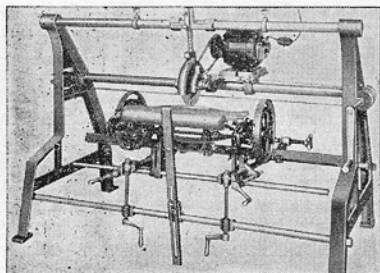
give more thought to their shots, and surely it does give the better golfer a chance to come through. The past season our greens were treated as in other years, no more, or no less food, nor did they have any special attention. We would like to see them better and hope we will show improvement.

During the National Amateur, greens were cut every morning, and during this tournament they were cut at the same height we had been cutting all season, as we feel often when the height of cut is changed up or down it invariably leads to trouble of some kind. To help out with the gallery we laid out large white lines around each green. These lines were six inches wide, and during the one week of play we used one and one half tons of whiting. It was a problem to keep these lines showing clearly as we had considerable wet weather, so it meant going over them a number of times. We hauled the whiting, white wash buckets, brushes and water around the course by truck. These lines were well out from the greens, keeping outside of the surrounding traps, and the circle was large enough so a large gathering had room to witness the play on or around the green.

The placing of cups at a championship is generally the duty of the chairman of the Championship committee of the U. S. G. A., but due to the fact that our Greens chairman was associated with the U. S. G. A., this duty was left to him, so we therefore studied carefully the contours of each green so as to be sure that the cup was placed in as fair a position as possible, constantly bearing in mind that we did not want any contestant to feel that the cup had been placed in an unfair or tricky position. You will probably all be interested to learn that even with a playing field of over 180 contestants and persistent rains, the location of these cups were unchanged the entire tournament, with the exception of one change on five greens and one of these changes was made necessary on account of a player having to use his niblick on an imbedded ball. Our caddies being well trained were extremely careful in removing and replacing the pin, thereby avoiding injury to the rim of the cups.

Miscellaneous

There are numerous things in any large tournament which come up and must be attended to. As in one case—we had a young lady who dropped a



We heartily congratulate The Greenkeepers' Club of New England and Massachusetts State College upon the splendid success of the Recreation Conference just concluded at Amherst.

Everyone directly or indirectly interested in golf should certainly cooperate to the fullest extent toward the perpetuation of this as an annual occasion.

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ring through a man-hole cover into a catch basin. While the large crowd around the home green looked on, four work men had to bucket out the contents of the catch basin and after a time we were fortunate in finding the ring. The score board must be in some desirable place, where all can see, so this, naturally, must be roped off. Around the course were eight telephone booths which had to be trucked out and in, and numerous other little details while not large, did take a little time. One thing which is always an eye sore is the litter of papers and bottles left around, so we had a caddie with a bag over his shoulder and spiked stick on the go all the time, and we feel we kept the course pretty well picked up. Of course the work men were also instructed to help out on this clean-up. Speaking of the men on the course, we feel we have a mighty fine crew at our club, and these men are interested in seeing things done for the best, not only in a large tournament, but right through any golf season, and we have been very fortunate in being able to keep these men over a period of years.

I would like to say a few words about how I feel and what I think is necessary where you are apt to have a few

large tournaments. I think a chairman of a Golf Committee should be a man who is actually interested in the golfing end of the club as well as the financial end. He should not be satisfied to sit back and say "Carry on", but be on his toes all the time and see some of the work actually done. Then he would realize what a man can be expected to do. My chairman, Mr. Pierce, is of this type, on his toes all the time—and on mine, too—but for all I might have felt hurt at times, I think it is as it should be. It surely is good protection.

Then your crew on the course. In my mind, you have got to understand human nature a little and you surely have to have a heart. Things do not always go right and often flying off the handle makes more trouble than a few seconds of thought. My crew has worked well and I appreciate it.

Now comes the point of being satisfied with the conditions on a course. I never have been, and never will be satisfied, because I feel I am interested in the work and the people I work for. You have heard people say after a tournament "Well, your worries are over now". To me that sounds like

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When factory gears turn steadily, doing their part to produce goods, courses are best patronized. Natural enough! Turning gears means orders are coming in . . . profits are in the making. With business operating at a profit everyone, from the big chief down to the office boy has more interest in golf. That's the case today. You can feel it in the air . . . tell it by the whirlwind resort business done this winter. This is certainly the time to get your course in the "pink" of condition for you know . . . it's good golfing that wins and holds players.

SWIFT'S Special Golf Fertilizer, used by outstanding courses all over the country, develops ideal turfs for play. In the spring it assures quick growth of strong, hardy plants that can withstand trampling and extreme weather conditions. It encourages deep rooting, permitting the plants to reach out farther for nourishment and moisture.

Greenkeepers have found that turf properly fed with SWIFT'S Special Golf Fertilizers has the stamina and hardness to offer greater resistance to disease and insect pests. If you are not using it, investigate the advantages of the economy feeding program we have developed. Write for prices and literature on . . .

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'hokum', or else they do not understand the ways of a golf course. There is always plenty to worry about, and to my way of looking at it, there is no end.

WINTER INJURY TO TURF

(presented by Prof. L. S. Dickinson at Recreation Conference)

It is very doubtful if any of the basic grasses of New England are affected by the severe cold weather alone. Bermuda grass wintered at the college over the steam lines; altho the tops were killed, the roots sent up new shoots in the Spring.

There is no need to protect turf from the cold; the protection may give more trouble than the cold.

Effects of severe Winter of '33-'34 seemed to kill much grass; no evidence that cold alone did the injury, altho it may have helped.

Much turf treated as "Winter-killed" when not killed. Grass with yellow or yellow brown color may be only set back. If grass is dark brown, it is probably gone; sod or seed or take a chance. Root systems in Spring are not known enough; if area shows light colored roots and if crown shows signs of bud growth, indication is that grass will come back, and in time of coming back there is turf upon which to play. The root system needs new roots, grass plant is trying to push up new leaves to manufacture food to help itself, hence it is suicidal to cut grass too short at this time. Do not chop off as soon as a few shoots show.

Primary causes of winter damage and rough percentages are—Poor drainage and attendant soil conditions, 65%; slopes and location, 5%; over-watering in Summer and Fall, 20%; wind, 5%; misc. including strain of grass, 5%; habits not suitable, 5%. Snow mold and ice damage are included in above. The pH factor is a side issue to soil and drainage.

Poor drainage, either of surface or sub-soil is largest cause. On sluggish surface, water goes down and water-logs the soil. Such a condition is liable to follow a surface thaw, followed by high winds and no snow, when pH and cultural treatments have been right for roots in top two inches; top two inches dry up, and sun causes warming of soil

and starts growth. Then severe cold comes on, and cell saps freeze, with a structural breaking down of the cells.

Winter injury on bents is largely on shallow rooted areas. Practically all injury was on low slopes or flat surfaces. Injury was found where there has been a building up of organic matter.

Ice will give the greenkeeper little trouble, may help snow mold. Black ice may be possible cause of injury. Best to leave ice on unless it can be removed very easily.

Slopes location may be a damage cause. Strong winds over soil will dry turf to give damage. Overwatering in Fall especially on poorly drained areas is cause of damage; this may be the case in fairway watering.

Snow mold if often called Winter injury; for this disease, dry out and brush out to give turf a chance to grow.

MEMBERS—ATTENTION!

We regret to announce that the Frolic planned as the April meeting must be postponed until Fall thru unavoidable reasons. This is not due to any fault of the Entertainment Committee, who worked hard on plans for this event, but rather, to several mix-ups which prevented us from holding it at this time.

RECREATION CONFERENCE

NOTES

Fingerprinting grasses by a method which depends on identification of internal structure of grass blades, studied in cross section, was an interesting subject presented by Miss Elfriede Klaycke.

Get members turf problem conscious—Evaal.

Officers elected by Winter School for Greenkeepers Alumni were Paul Wanberg, Pres., Clinton Bradley and Joseph Whitehead, Vice Pres., Wm. F. Nye, Sec. and Treas.

Values of Forestry, as given by Pres. Hugh Baker—water conservation, recreation, labor stabilizing value, beauty, and wood value.

IT WILL BE DANGEROUS

this year to go "shopping around" for prices on golf turf seeds. Why? Because there will not be enough good seed to go around.

Sooner or later you are going to know and depend upon us for true value.

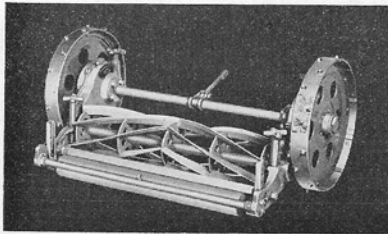
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8-6-2 GREENS FORMULA

Already several announcements have been made for our new Organic Base Putting Green Fertilizer. Indications based on orders already received and additional inquiries for prices lead us to believe this will be one of the most popular blends of the season.

NETCO 8-6-2 Greens Formulae is 35% organic, and this comes from the Milorganite and Dried Blood content. This slower action organic form of nitrogen is supplemented with the quicker inorganics such as Sulphate of Ammonia and Ammo-Phos. Together they make a most perfect combination.

NETCO 8-6-2 can be used with excellent results on Fairways, but we believe that Fairways will be sustained for a longer period if you use straight Milorganite at rates varying from 750 to 2000 lbs. per acre, (depending on condition of the turf and last previous feeding).

Prices (Zones C-D)

Quantity	Cash with order	Charge account
100 lb. bag	\$ 3.00	\$ 3.00
1 Ton	49.50	55.00
20 Tons (per ton)	46.20	52.25

Full freight allowed to destination. These prices conform to the new Fertilizer Code Schedule.

Estimate your requirements, send in your order at either the cash with order or charge account schedule. You can make quite a saving by cash with order. It actually amounts to ELEVEN PERCENT. Many clubs are trying it for their first time. We should like to have you try it this season.

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