



NEWS LETTER

IN THIS ISSUE

CLOVER IN ACID SOILS

LET'S HAVE REAL COOPERATION

A COMPOST REVIEW

OCTOBER MEETING

A NEW JERSEY EXPERIMENT

OCTOBER

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GUY C. WEST Editor
312 Mt. Pleasant St., Fall River, Mass.

MARSTON BURNETT Business Mgr.
330 Waltham St., West Newton, Mass.

October, 1931

Vol. 3, No. 10

CLOVER IN ACID SOILS

by Dr. M. H. Cubbon,

Prof. of Agronomy, Mass. State College.

It is common knowledge that potassium (potash in everyday usage) is largely responsible for the growth and encouragement of clover in greens. Four percent potash is considered a maximum in fertilizer mixtures for greens, and some mixtures carry only a trace or none at all.

Very little attention has been given by those in charge of greens to the amounts of available potash already in the soil. The old story of plenty of sulphate of ammonia appeared to satisfy everyone. But in numerous cases the continued use of sulphate has failed to prevent growth of clover. There is no question of the acidity developed by continued applications of sulphate. Why, then, does clover continue to grow under acid conditions?

The answer appears to be that potash is much more soluble in acid than in neutral soils. Tests made in various states on the effects of acid producing nitrogen fertilizers on solubility of potash all showed that the more acid the soil becomes the more soluble the potash. Soluble potash is usually available, and therefore clover gets the tonic it needs.

Loam or clay soil contains large amounts of total potash. Attempting to keep out clover with sulphate of ammonia, especially on the heavier soils, is like trying to put out a fire with gasoline.

There is one other factor. The more acid the soil, the less soluble the phosphorus becomes. Of the two, phosphorus and potash, phosphorus is more desirable because of its effects on root growth. Attempts to make soil acid must therefore be undesirable because of the phosphorus behavior. Even grass needs some phosphorus, so by making soil

acid conditions are not satisfactory for grass.

Perhaps when you are trying to get rid of clover by using sulphate of ammonia you are actually giving the clover more encouragement than the grass. Clover roots, because they may go more deeply into the soil than grass roots, may pick up most of the phosphorus they need from the subsoil. I firmly believe these factors are worth considering by all greenkeepers.

Effect Of Sulphate On Clover

Some years ago there appeared in the Greens Section Bulletin a summary of the value of gypsum, or calcium sulphate, for crop production. Results were mostly negative. The few positive cases indicated that gypsum was very favorable to the growth of red clover. The reason for this has never been satisfactorily given, but it appears that the sulphate part of the gypsum had as much influence as the calcium, and possibly more.

Sulphate certainly makes the root nodule organisms of red clover to work with a vengeance. This action stimulates the clover. The white clover that appears in greens may be influenced by sulphate exactly like red clover. At least, it is under strong suspicion.

The large number of letters which have reached us in the past month, with comments on our brown-patch discussion in last month's NEWSLETTER, show conclusively that this subject is a "hot" one. Greenkeepers are not satisfied with the present knowledge of turf diseases, and are looking everywhere for help. It seems generally to be understood that some experts are helping, or at least, trying to help. Most agree that greenkeepers can do much more toward solving the problems which the various turf diseases present. We shall be pleased to receive comments from other readers concerning this very vital subject.

We are particularly glad to present a very fine comment and plea for co-operation from Charlie Parker of the Belmont Springs Country Club. We have been pleading for some real co-operation between greenkeepers, club officials, and the real experts, and feel Charlie hits the nail squarely on the head when he asks such cooperation.

LET'S HAVE REAL COOPERATION

We are indebted to the Editor of the NEWSLETTER both for his reprint of Langton's article and for his own suggestion "An Idea"; however, I believe that we are still following wrong trails and round-about-paths. What we want is something more stable to lean upon than we now have when turf diseases attack us. I do not believe that any one Greenkeeper or group of Greenkeepers can hope to make much headway towards solving the problems of turf diseases through their own efforts alone.

It makes no difference to me who the individual Greenkeeper is, whether his course is a "hayfield" or of championship rating. I do not care what his native ability is or how much it has been supplemented by formal study of technical training, he cannot give this problem the close attention and intensive study demanded by it to be productive of genuine results.

Our work is too diversified; we have too many distractions even in our daily routine to hope to be able to contribute anything direct and immediate. At best we can only expect to make snap judgments and advance half drawn conclusions. Radical? Most certainly not. Turn to any professional field you choose and you will find that research is as much an integral part of the whole as any other phase of the work. Research and the research worker are vitally necessary to our field as well.

This season as never before should convince every Greenkeeper that until he looks at research work with an open mind and wide spread arms he is not being true to himself, his Club, or his profession. The open door to research is nearer than it has been, but it is directly up to all of us to see that this door is fastened open and to cut down the time as quickly as possible when the mat with "Welcome" on it is put out for all time.

We should all continue to make our own observations and attempt to draw conclusions, but do so advisedly. A thousand false observations do not constitute a single argument for our giving up this phase of our work, for who knows but the next one may be of value. Bordeaux Mixture was an accidental discovery first put on the vines to prevent the stealing of grapes from the vineyards. However, we cannot sit by and wait for some one to stumble on an aid to our troubles, and the quickest,

surest and safest way to attack our turf disease problems is to encourage and promote research work.

It is my observation that we can blame no one individual or group for the lack of definite progress on disease control, but three main groups are involved and should admit their responsibilities. They are, the Greenkeepers, Golf Officials, and those who have been termed scornfully, "scientists". We have had periodic flare ups from the "scientists", often incomplete and not always practical, much better than no work whatever, but why no sustained progress. Golf Officials, I suspect are more or less to blame for this lack of progression, for in an off year for disease they forget, and have caused what has, until recently, been the only source of turf research, the Greens Section of the U. S. G. A., to side track the diseases and pick up something else. It must appear to any open mind that the actual work of the Greens Section is in most capable hands, but I wonder how often these hands are allowed to work unhampered and untied? Greenkeepers! We have not always helped. Passive resistance is not the exclusive property of Ghandi. Many of us have used this method. At other times we have not been passive, and still other occasions have found us letting ourselves become panicky and have upset the apple cart completely and then have passed the idea and the blame back to the "scientists" as being impractical.

We must shake our provincialism and meet the research man more than half way. To the research man I will say: "There is a great deal of good in most of us, bear with our individualisms and idiosyncrasies and always remember that disease is only one of our troubles, many of which are not apparent on the surface, but nevertheless may have a very strong influence on us and our working conditions."

I believe that somewhere there is someone, who given sufficient time and full co-operation both in the field and in the laboratory, will give us materials and methods which will produce reasonably satisfactory control of our present turf diseases.

Greenkeepers! When that time comes let it not be said that the goal has been reached in spite of us, but that we have contributed materially through our practical aid and whole hearted co-operation!

Charles W. Parker

A COMPOST REVIEW

(Some ideas gathered here and there.)

Although dealers in certain organic fertilizers recommended for putting greens advertise the fact that compost is no longer necessary on the golf course, that their fertilizer takes its place; nevertheless most greenkeepers use compost in some form in varying quantity. Doubtless most courses need compost. The fact that a putting green surface can be evened and smoothed by an application of compost rubbed in, as no organic fertilizer will do in such quantity as it can be used economically and efficiently, will cause most greenkeepers to use compost applications occasionally for this purpose. For lightening stiff soils applications of a sandy compost are very helpful, and for increasing the water-holding capacity of sandy soils compost made with a high quantity of humus is of assistance. In brief, although it is not the purpose of this article to show why compost is necessary on the golf course, it is doubtless true that the majority of greenkeepers use compost, and hence observations relative to its preparation are of interest and in order.

Compost as prepared on the estate, the farm, and for the greenhouse has mostly consisted of soil and manure heaped in piles in alternate layers, with other materials included, as grass clippings, leaves, straw, etc. Commercial florists also use the field method extensively, and this method is probably the most economical for the golf course where there is plenty of land and good soil available adjacent to the golf course.

The field method of preparing compost consists of spreading manure over a piece of land where the soil is a good loam or sandy loam, and plowing this manure under. This process is usually continued for two or three years, and the area disced often to kill any weeds which may germinate. The area is usually turned several times and the compost thus prepared is used two years after the last application of manure. If a compost screen on wheels is used, it can readily be seen that compost may be prepared by this method fairly economically.

All golf courses should have a compost pile or piles on which may be thrown all refuse which may be of assistance later. This pile would receive plugs taken from greens and tees, clip-

pings, leaves, and such debris. Separate piles should be used in such a way that all material which might be detrimental to the course would be put on piles which are allowed to "break down" for a longer time than the average compost pile. Such piles might well be called "humus piles", and the largest part of the material used be such that it will form humus when broken down. Manure should be spread occasionally over such piles to introduce the necessary bacteria, and an occasional layer of loam is a benefit to such a pile. These humus piles should be allowed to break down for several years, and then this material used with other compost, or it may be mixed with other loam, and screened the year following mixing. Such humus piles are of great assistance to a course whose soil is sandy, and also to those with stiff clay soils.

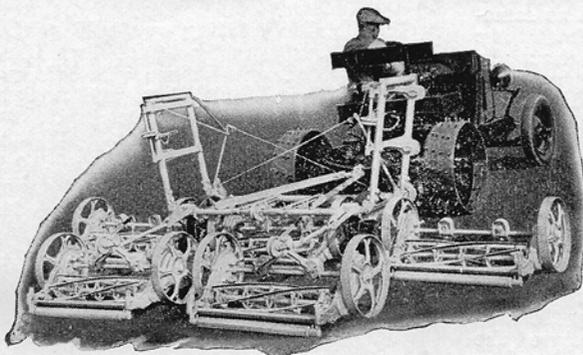
Where the pile method is used on the golf course; it is most economical usually to make the piles long, and comparatively narrow, such as 15 or 20 feet, and not too high, 3-4 feet. Both ends should be sloped so that a tractor or horse may ascend easily. Such piles can be plowed several times during the season to kill any small weeds which germinate. When it is desired to turn over such piles, it is easiest to do so with a scoop, using either a horse or tractor. Such a method is much more economical than the old cut down and shovel up method.

If a club has available on its grounds supplies of peat, muck, or humus, and desires to use such materials, it is usually best to compost such material before attempting to use it. It can be spread with manure over a field of loam, and the whole plowed and disced, for the field method, or it can be used in layers of loam, manure, sod, etc., for the pile method. With either method, the introduction of bacteria from the manure and soil, is a prominent step in the breaking down of the material.

Whatever method is used in the preparation of compost, care should be taken at all times to keep weed seeds out of the compost. Weeds growing near piles or fields should be hoed out or cut off before they seed, and weeds which are full of ripe seeds should not be used on piles, but rather burned. It is never necessary to worry about killing later the weed seed kept out of the compost, it is the ones let in which later must be killed!

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to have facilities through compost shed, etc., whereby compost may be screened inside, when dry, and at somewhat dull times. Compost sheds are often built at two levels, so that the compost may be brought in at the upper level, and after screening, fall through to the lower level, where it can be stored until it is desired to use it on the course. Usually where a large supply of compost is used yearly, it is efficient and economical to have a compost shed, as the screening of dry material is so much more efficient than the screening of wet material. In some cases, clubs with no compost sheds screen enough for the following year during the dry period of the Summer, and store the screened compost in smaller cellars or buildings which are available.

There are several methods of killing, or attempting to kill, the weed seeds in compost. Baking and steaming are probably the two most common, and many clubs have outfits to either bake or steam all their compost before using. The extra work and expense from this additional process is supposed to be more than compensated by the freedom from weeding later. Another method, as used at the Charles River Country Club, is to mix the screened compost in a large cellar with poultry manure, and to turn this mix several times. The poultry manure "heats", and this heat kills the weed seed. Recent investigation has shown that weed seeds will germinate in some cases after many years in loam, and doubtless many composts contain viable weed seeds. It is a simple matter to test compost by putting some in a flat and keeping it watered, noting the number and varieties of weeds which germinate.

Compost still has a big place on many golf courses. The preparation of it is a job of magnitude in itself. It is work which must not be slighted, even though it doesn't show up much to the average player. Whatever method or methods are used should be determined by the individual greenkeeper after a careful survey of his course, but he should ever be on the alert to take for himself his neighbor's method if it is an improvement on his own. He should adapt the texture and kind of his compost to his own soil conditions. Efficient compost preparation and use will be an ever-helpful asset to his desired efficient course maintenance.

Guy C. West.

OCTOBER MEETING

The October meeting was held at the Rhode Island Country Club, West Barrington, R. I. on October 5th. Messrs. William Tobin, John Pyle, and Joseph Ryan were elected to membership.

The Club Championship was played in the afternoon, and won by John Counsell of the Reservation Golf Club, Mattapoisett, Mass., with a fine 84. Jack went out in 39, but slipped a bit coming in, needing 45 for the second nine of this testing layout.

Other prizes were awarded:
 2nd Gross—C. E. Sowerby 87.
 1st net—M. J. O'Grady 91-15-76.
 2nd net—M. McDonough 98-20-78.
 3rd net—R. F. Robinson 102-24-78.
 4th net—Tom Galvin 94-15-79.
 Guest prize—J. Cashel 96-25-71.

Selected 17 holes, (prizes presented by Tom Jones).

1st net Thomas Grady 80-7-73.
 2nd net tie between—Jos. Oldfield 81-7-74—Martin Greene 81-7-74.

Over sixty-five members and guests enjoyed the day spent at this fine club, and we appreciate the fine hospitality offered by the club and Mr. Galvin. We also are indebted to Mr. Jones for the prizes he donated, and thank him for this courtesy.

Clifton E. Sowerby.

A recent bulletin from the Mass. Exp. Station, "Hardy Woody Plants", by Frank A. Waugh and Charles H. Thompson, is of special interest to all of us who have examined with interest the many plants on the campus at the Mass. State College. This bulletin covers the history of the various college plantations, and gives notes on species and varieties of woody plants, with special regard to their adaptability to the conditions and climate at Amherst.

There is a strong possibility that some short course for greenkeepers may be offered by the Rhode Island State College this coming Winter. Greenkeepers of Rhode Island are unanimous in asking for such a course.

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Solution	Wt. of tops. gms.	Wt. of roots. gms.	Depth of root system ins.
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B	14.7	9.1	4.2
C	19.3	11.7	6.7
D	29.0	19.9	8.5
E	23.8	17.8	8.0

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C	1	3	3	3
D	1	1	5	3
E	1	1	7	1

An advanced Winter School for greenkeepers is announced by Prof. Lawrence S. Dickinson of the Massachusetts State College, to be held this coming Winter, from January 4th for ten weeks. This course will be a continuation of the regular ten weeks course which has attained so much popularity nationally since its inception, and is open only to those who have completed the regular course. Any greenkeepers who have completed the regular

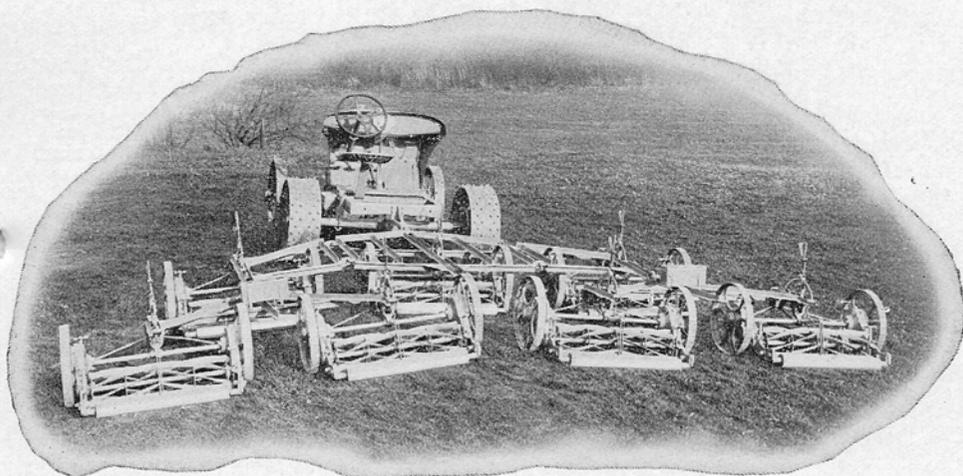
course, and who are interested in this new advanced course should communicate with Prof. Dickinson at once, as enrollment is limited to 15, and there are twelve applicants to date.

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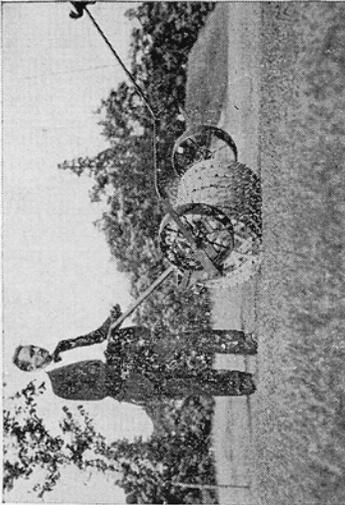
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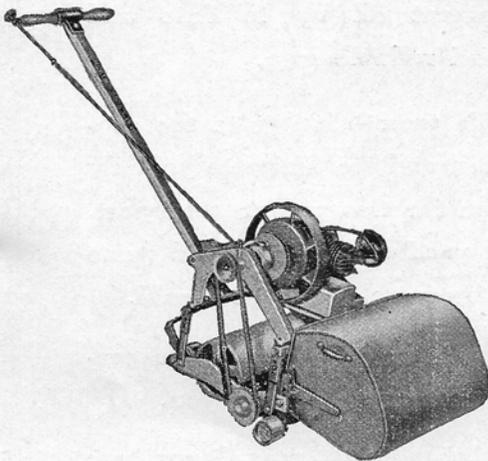
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