

NAGA ALL SET FOR ANNUAL BIG SHOW

Toronto Is Host City to Greenkeepers for Their Annual Convention

DON'T FORGET THE DATES—FEB. 4-5-6-7

WITHIN a few days after this issue reaches its readers, the 1935 convention and show of the National Association of Greenkeepers of America will be in session full blast at the Royal York hotel, Toronto. From indications at this writing, the NAGA stands an excellent chance, Feb. 4-7, of exceeding all former annual meetings in attendance, and it is certain that those superintendents who attend will get more from this year's session than ever before. The papers to be read are all important and timely and the equipment show will contain lots of hunches to guide greensmen in the season ahead.

Among the exhibitors who are displaying at the greens show are:

Toro Manufacturing Co. with a complete line of its greens maintenance equipment; Fairbanks-Morse, Ltd., of Canada; Mallinckrodt Chemical Co. with its mercurial fungicide products; Gravely Motor Plow; Buckner-Rainer's line of watering equipment; Worthington Mower Co.; Skinner Irrigation; McClain Brothers Co., with ten or more golf course specialties; the Sewerage Commission of Milwaukee; Wm. Rennie Seeds, Ltd.; the Chicago Flexible Shaft Co.'s line of sprinklers; Canadian Industries, Ltd.; Marco Agencies Co.; Jacobsen Mfg. Co., mowers; the International Harvester Co. display of tractors; Arps Corp. tractors; Ideal Power Lawn Mower Co.; Pennsylvania Lawn Mower Co.; Fraser's International Golf Year Book; and several other concerns which are expected to exhibit but which have not signed up at this writing.

The educational program will be made up of addresses by sixteen well-known authorities in various greenkeeping fields. Three sessions, on Feb. 5, 6 and 7, will be required for these papers.

Among the first day's papers, the talk of W. H. Wright, chief seed analyst of Ottawa, promises to contain a wealth of valuable facts for the guidance of greenkeepers, particularly since the skyrocketing of seed prices due to last season's drought. Now, more than ever before, the greenkeeper must know what seeds to buy to get the most for his money.

J. Hunter Gooding, of Wilmington, Del., will also talk at this session. His subject "Prevention of Brown Patch and Snow Mold" is to be illustrated with motion pictures. Other valuable addresses will be given by O. J. Noer, Robert Trent Jones and Prof. Lawson of Ontario Agric. College.

At the second session, the talk on limitations of chemical soil tests by Prof. G. N. Ruhnke of Ontario Agric. College should put the greenkeepers straight on just what these tests can show. He will be followed on the program by Kenneth Welton of the Green Section, whose subject this year is "Fairway Fertilization." Others scheduled for the second meeting include Chester Mendenhall, H. Hawkins, Chauncey Kirby, and Prof. H. C. Crawford.

The final day of the educational program will bring talks on fertilizing fairways and greens by R. Emslie, swimming pools and tennis courts by Paul J. Lynch, organization by J. Gormley, club grounds planting by Prof. Tomlinson, and preparing putting greens for winter by L. J. Feser.

Convention headquarters are the Royal York Hotel. Railroads are quoting special convention rates to all. On the entertainment question, the greenkeepers will not miss the annual dinner, scheduled for 7:00 p. m. on Feb. 6, and the annual midnight show to be held the following night. Annual election of officers for the NAGA will occur the morning of Feb. 7.

DO WE HAVE



Applying winter topdressing at Hillcrest C. C. (Los Angeles) in preparation for heavy winter play.

"PITY THE POOR cold-weather greenkeeper," runs a Pacific Coast belief. "He has little more to do from now until the thaw than throw out-of-bounds posts on the fire and tell lies about the hard times." Whether or not there is any truth in this conception is a matter of considerable debate, but certainly such a situation does not obtain on the sun-kissed shores where the greenkeeper is kept just as busy now as during the summer months. Neither may it be true that the Pacific or southern greenkeeper is a better technician than his snow-embattled colleague, but it is undeniable that where in the eastern and northern turf experts are confronted by one set of conditions, the year-round greensman must combat two.

In California, for instance, brown-patch no longer is a very serious threat. The arrival of rains has driven most of the sprinklers into cold storage for a few months, and the heat has abated. But the threat of floods is an ever-present cloud in many districts; tournaments are scheduled; play has increased; the old reliable Bermuda grass has hibernated and all other grasses, not having read the chamber of commerce literature, are reluctant to come up and enjoy the bracing winter climate. This means that for the greenkeeper a new set of values has been established, and if he is wise he studies them in the light of future developments before following any maintenance schedule.

Now is the time when "warm" fertilizer can be given to the greens without the probability of disastrous results, and now

is the time when many greenkeepers make a terrible mistake whose dire effect will rear its ugly head next summer. Yielding to temptation to make greens snap out of their soporific state, these greenkeepers apply literally tons of fertilizers of all kinds. Such a procedure is faulty for two reasons: first, winter root action being weak, easily soluble inorganics will be leached away before they are assimilated; second, slower acting organics will be held in the soil unused until the weather gets warmer when they will provide a prolific base for grass pathology.

Going Contrary to Nature

Turf, after all, bears considerable resemblance to the human organism. If its youth is spent in mistreating its bodily structures with irregular habits, its later days are spent in reaping the harvest of physical ills. Simply because grasses in winter will not burn up when subjected to high-powered fertilizer cocktails is no indication that they are being benefited by the treatment. However, in one respect grasses are treated worse than their human counterparts because golfers in sunny climes have decreed that these plants shall not be allowed to obey their natural tendency to stop growing during the winter months.

Accordingly the Pacific greensman must exercise extraordinary care at this time of the year when seemingly his vigilance might safely be relaxed. Whereas in the summer time he administers cooling rather than energy giving food, he now finds it necessary to prescribe stimulants in the shape of small concentrated doses of nitrates, such as those contained in ammonium sulphate, sodium nitrate, blood, and the like. As has been indicated organic matter in large and heavy doses is taboo. The grass naturally is dormant and has not the necessary root action to assimilate much in the way of food which is not immediately available. It is a fairly conservative guess to say that 30 per cent of summer grass complaints arise as a direct result of incorrect feeding dur-

JUNE IN JANUARY?

"AND HOW" SAY COAST GREENMEN

ing the previous season in which soil is crammed with unassimilated and disease breeding organic matter.

Each Course Is Separate Problem

It is impossible to prescribe a universal dosage for winter greens for the old reason that no standardized conditions of soil, climate, or playing conditions prevail. Feeding 150 pounds of dried blood and cottonseed meal for every 5,000 feet of greens area, such as some greenkeepers have used recently, is excellent—if experimentation has shown that a particular set of greens requires this sort of treatment. The writer frequently has been criticised for being too indefinite when it comes to enlarging on grass diets, but it has been his observation that any other course is suicide because of contradictory conditions which prevail.

A number of greenkeepers were asked how to treat greens in winter. No two agreed, yet each was a successful greenkeeper on his own course. One man with warm dry soil found that his turf responded immediately to short, sharp doses of ammonium sulphate. This same chemical had no effect upon the grass grown in the colder soil of another course twenty miles away. On the latter course ammonium nitrate was found to be an excellent stimulant. Other examples could be quoted, any one of which would be sufficient to prove that any man who becomes dogmatic upon this subject merely is paving the way to a betrayal of his own ignorance.

Raise Mower Blades

As far as concrete suggestions are concerned in regard to winter greens, a few may be given with safety. The arrival of cold weather is the signal for raising mower blades about $\frac{1}{8}$ inch, because the thinner winter grass makes for terrifically fast greens. During one mid-winter tournament a contender had reached the eighteenth green with a splendid score and needed only an easy par-4 to be well up in the running. His second shot stopped within 6 feet of the hole when, alas! the afternoon breeze, which arose on schedule to temper the sun's rays in the well known

California manner, swept that ball off the green into a nearby gully, wherein the player stroked himself out of the money. Since that time summer short grass in winter has not been in much favor. However, Washington bent greens must not be allowed too much growth, else the blades curl over and form a mat which grows with the blades uphill, so that it is difficult to putt down against it.

Until the actual arrival of the rainy season extreme care must be exercised in watering else the greens will get filled with ball pits which are almost impossible to patch correctly during the season of little growth. Rather than try to fill them up, it is best to attempt to lift the dented sod so that no grass will be lost in the patching process.

Preventing Frost Damage

On frosty mornings when the grass is white—yes, this phenomenon is recognized in the Golden State—it is imperative that no one tread on the grass until the frost is removed, which may be accomplished by a light sprinkling. Failure to observe this simple rule will mean that every passerby will leave his footprints etched on the grass for days to come.

The big weed pests during the winter months are the clovers, particularly the bur variety. Nothing remains but hand picking as a remedy if this weed gets firmly established throughout the greens. However, some greenkeepers who find bur clover of the fairways impinging on the greens surface burn a protective border about two feet wide around the edge of each green with ammonium sulphate or other strong fertilizer. A treatment such as this presents a messy appearance for a week or two but the turf will recover its weed-free beauty if the dose has been applied carefully.

After looking forward all summer to the arrival of winter the warm weather greenkeeper already is wishing for the return of the season when grasses will grow and cover any mistakes that he has made. This proves practically nothing except that every course superintendent always can find something to complain about no matter what the season.

LIME

How It Is Used in Turf Culture And What Benefits It Brings About

LIME, A MIXTURE of calcium and oxygen in various amounts, is found in three forms, all of which can be used on the turf in varying quantities and conditions.

The slowest acting and the best form to use is calcium carbonate, commonly called ground limestone. It is found in limestone rock, marl and oyster shells. It contains 56 per cent calcium oxide.

Calcium oxide, known as burned or quick lime, is made by heating limestone to a temperature sufficient to drive off the carbon dioxide. It contains 100 per cent calcium oxide and is very caustic and will burn turf unless used very carefully. This form is the most powerful of the limes and 56 lbs. of this quick lime is equivalent to 100 lbs. of ground limestone. This form is seldom used on turf.

Calcium hydroxide or hydrated lime is the product of the action of water on calcium oxide or burned lime. Considerable heat is evolved when the calcium and water combine. This process is known as slaking. Hydrated lime is more powerful than ground limestone but not as powerful as quick lime. It is quite often used on turf when immediate results are wanted and when it is capably handled. This substance contains 65 per cent calcium oxide 74 lbs. of hydrated lime is equivalent to 100 lbs. of ground limestone and 56 lbs. of quick lime.

Lime in its caustic state has the property of rapidly decomposing vegetable or organic matter, thus hastening the natural process by which it is destroyed. This decomposing action causes gases to be given off, some of which the carbonate of lime will absorb and prevent from mixing with the air. These gases form a large part of the necessary food of plants. It is obvious that a soil which contains carbonate of lime may retain the gases and store them up for use, while they would be lost in soils of a different nature.

Lime will also neutralize the acids of the soil, therefore increasing the amount of acting bacteria, since bacteria are retarded by acidity.

Caustic lime is dangerous because it corrodes and destroys living plants such

as grasses and vegetables, and destroys the organic matter to such a degree as to injure the soils' fertility. Ground limestone is the best because of its slower action.

Lime combines with the silicious matter of the soil and therefore makes the soil more friable. It is the formation of this to which we are inclined to ascribe the valuable mechanical properties of loaming soils and the gradual improvement produced by the use of lime as a fertilizer.

Lime with much magnesia is harmful, as the magnesia does not carbonate as rapidly as the pure lime and therefore retains its corrosive quality long after the lime has become mild by its union with carbonic acid. In small quantities it is practical.

Uses of Lime in Turf Culture

When a soil contains inert animal or vegetable matter, their decomposition may be promoted and it may be rendered fit for the food of plants, by the addition of lime.

If the soil is acid, neutralization of the acid and the permitting of the organic matter to decompose, that was prevented by the acid, is a result of applications of lime.

Clay may be rendered less retentive of moisture and more friable by the same means.

The gases which are formed by decomposition of the organic matter can be held by the lime for further plant use. These gases being a great part of the plant nutrient.

Lime may also be used in breaking down the organic matter in compost piles before applying to the turf.

Grasses on soils of increased acidity by the use of sulphate of ammonia or ammonium phosphate show a tendency to become easily injured in periods of extreme heat during July and August. These grasses are also more susceptible to fungous diseases. After lime applications these turfs show a remarkable change and become more resistant to fungi and scald. It indicates that the use of certain acid-reacting fertilizers can be overdone and

that previous taboos of lime on golf courses is erroneous.

These facts indicate that neither lime nor an acid-reacting fertilizer can be used excessively but must be judiciously blended in use. Any extreme change in acidity should be avoided.

Lime should be used as needed to correct soil acidity or to correct the harmful effect of the excessive use of certain fertilizers, although they may not have made the soil acid.

Excessive use of lime should be avoided just as the excessive use of any other chemical should be avoided.

Sign Post to Lime's Need

The need of lime is expressed in various ways. A common symptom in bent grasses is a yellowing and generally unthrifty appearance, especially during the heat of midsummer. If soil and moisture conditions are favorable and turf does not promptly respond to a nitrogenous fertilizer, it indicates that lime may be needed. If irregular patches of turf turn brown as though scalded and the soil in these patches dries and becomes almost impervious to water, there is a possibility of lime deficiency. If fungous diseases are active and are not easily controlled by fungicides, this also may be regarded as an indication of lime shortage.

Any of these symptoms of lime deficiency may be produced by other causes. However, if considered collectively, they are of great importance in pointing to the need of lime.

Applying Lime to Course

Applications of lime should be about 25 lbs. per 1,000 sq. ft. on greens and 1 ton to the acre on fairways.

Hydrated lime can be used for quick results but should not be used within 10 days after applying ammonia fertilizers. Neither should such fertilizers be applied for several days after hydrated lime has been used. Neglect in these precautions may result in severe burns due to the release of ammonia gas.

Under field conditions when lime is applied to the surface it becomes effective in lowering the acidity, first, of the upper portion of the soil, later extending gradually to the lower levels. Since the feeding roots of most turf grasses are fairly near the surface the effect of light liming may soon be observed.

Sulphate of ammonia is still regarded as one of the best fertilizers for golf course use. It must be properly balanced with other materials used for plant food in order to give best results in turf culture.

Grasses on an acid soil stimulated frequently by sulphate of ammonia are more susceptible to fungous disease and other injury than is true of grasses grown under normal conditions. It is recommended that the soil pH for golf turf should be between 5.8 and 6.5, and that superphosphate and limestone be applied each year. If sulphate of ammonia is used as a source of nitrogen, ground limestone should be applied at the rate of 75 lbs. for each 100 lbs. of ammonium sulphate applied.

In many instances the failure of turf grasses during the summer months is due to the toxic effect of the soil acidity and not to the invasion of fungous diseases. This is proved by the fact that the mercury compounds have no effect in restoring the turf to the normal color and vigor, and that an application of lime does restore the grasses to normal condition.

Ground limestone is best to use during the growing season. Hydrated lime has a tendency to cake and discolor the green, while ground limestone particles are larger and heavier and work in between the grasses, disappearing entirely from view.

It has been found that under turf conditions there exists at certain growing seasons a scarcity of soil nitrates. This is due to several causes. Under turf there exists keen competition between the grasses and soil micro-organisms for the available nitrogen present. In the case of greens frequently rolled, nitrification is reduced due to poor aeration. In the case of extreme acidity, the activity of the nitrifying bacteria is considerably reduced. The excess amount of ammonia salts brought about by poor drainage has been found to reduce nitrification. This is due to applications of large amounts of sulphate of ammonia.

Certain mineral salts also affect nitrification. One of these is mercury, which is ordinarily used as a fungicide. The effect of these minerals is to destroy the cell structure of soil micro-organisms.

Tests showed that on an unlimed soil mercury considerably reduced the activity of nitrifying organisms. Arsenate of lead, on the other hand, has stimulated the production of soil nitrates. The addition of lime eliminates the injurious effect of

the mercuric compounds, proven by the fact that nitrification is reduced 25 per cent on an unlimed soil, while on a limed soil it is only reduced 15 per cent.

Mercury compounds also produce an injurious effect on nitrifying organisms in acid soils. The addition of lime overcomes this toxic effect.

These results should not discourage use of mercuric compounds in fungus control, but rather to call your attention to the fact that such materials may reduce the available nitrogen of the soil, especially in the case of those soils which are in need of lime.

The slow recovery of grasses, often noted following repeated application of fungicides, may be due to the reduction in the supply of available nitrogen in the soil as the result of injury to nitrifying organisms.

The use of ground limestone at the rate of 25 to 50 lbs. per 1,000 sq. ft. is recommended for a soil of pH 4.5 to aid in checking brown patch.

To change a green with an acidity test of pH of 4.5 to the desired pH of 6 by the addition of ground limestone can be worked out by this formula:

Subtract the present pH from the desired pH, and multiply by the factor of the soil you have. The constant factors for soils to be used are: Sandy or loamy sand, .75; sandy loam, 1.00; loam, 1.25; clay or clay loam, 1.50. This will give the tons of limestone per acre needed to change the acidity.

Paper read at Mass. State College Short Course.

Rake Is Handy Aid to Raising Long Ladder

IT IS often necessary for one to raise a long heavy ladder alone. Trying to prevent the lower end from slipping is not an easy matter; the leverage accumulated as the end of the ladder rises is often near the limit of the strength of the ordinary man.

Do it easily with a common rake. Place the teeth of the rake over the first rung and start the ladder up. The resistance needed at the end of the ladder is but little, only you cannot be in both places at once. Step on the handle end, pressing it lightly to the ground. This slight amount of resistance will keep the ladder end nicely down and afford the leverage pivot

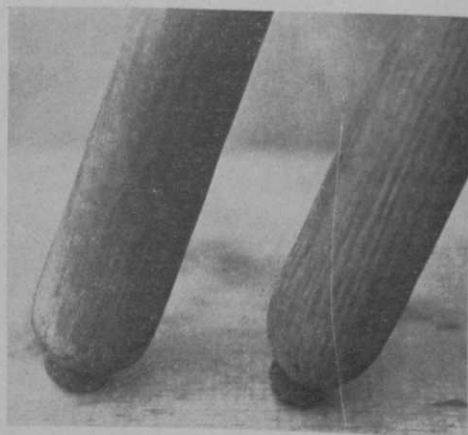
with which a long heavy ladder can be easily, quickly and safely raised right



where you want it on either ground or cement. No danger of breaking the rake handle, as one step forward is all you need to take.

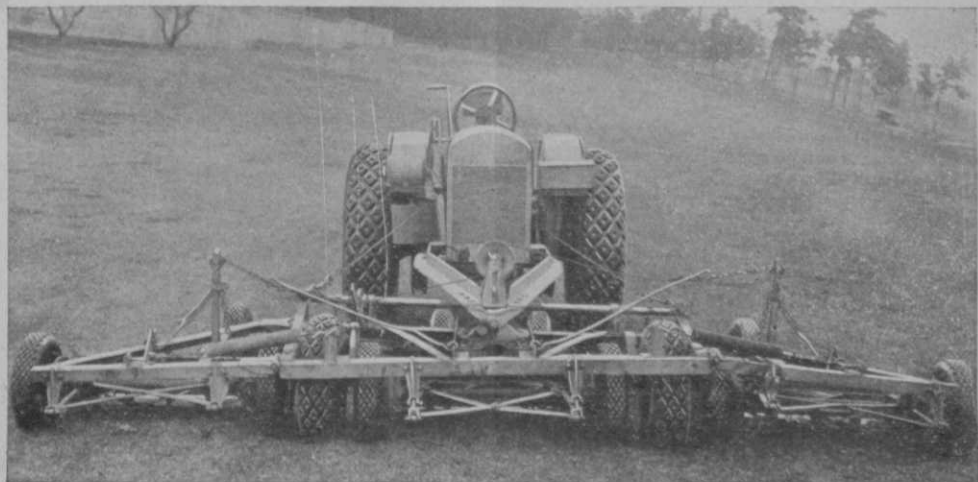
Helps to Stack Tools on Slippery Floor

RAKES, trimmers, scuffers, and other long handled tools are commonly stacked as neatly as possible in a convenient corner, often with metal end up to protect flooring. The handle ends, resting on smooth concrete or board flooring, are an easy thing to slide when moving or selecting a needed tool to work with. When one handle starts skidding,



the whole stack is liable to crash to the floor. Drive a rubber headed tack in the handle end of each as shown above. The tack is never in the way when using the handle, and no matter how smooth a surface they may rest or set on, it stays put and does not "scoot" away from you. Saves your floor, tools and temper.

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PRIZE BAR DESIGN

Club managers have drawn on their experience in appraising the prize winning bar designs in the Brunswick-Balke-Collender \$5,000 contest with the result of bringing out some points of decided value in club bar design.

Color, chromium and mirrors worked in modernistic design played important parts in most of the prize-winning bars. The old brass rail, with some fancy modifications, seems to have held its own.

For the most part the club managers pronounced the modernistic bars suitable for golf clubs only as cocktail bars, if space and amount of business permitted. The rather simple bar of tradition seems to have established itself firmly as so much of a ranking favorite at golf clubs that men members would view the fancy innovations with alarm were such designs to appear in the male quarters of a club.

Plenty of elbow space is rated by managers as the first requirement for a club bar. Paul A. Tamsen, manager of the Hempstead (NY) GC comments on this need by remarking: "During the busy season with tournaments, stag parties, etc., we have as many as 40 to 50 men crowding the bar. Such business requires fast service with three or four bartenders and one checker or cashier. Obviously the design of a bar to handle this volume of business can not be dainty or have too much of modern art in it.

"Most country clubs on Long Island require a real man's bar with pretzels and cheddar cheese on the counter, a brass rail and a battery of cuspidors.

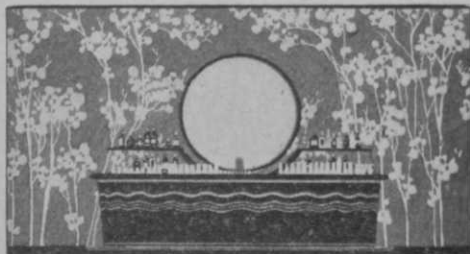
"However, it looks like the growth of women's drinking during prohibition and the extensive patronage of country clubs by women now makes it rather profitable for larger clubs to have a cocktail room in addition to the men's bar, which is usually located in the men's grill or else accessible for service to both locker-room and grill. Present bar installations often are not suitable for mixed drinking and on that account do not stand much of a chance of getting the business possible on party occasions.

"The Brunswick prize designs afford

Managers Tell How Layout Should Be Modified for Club Use

very attractive and practical solutions to the problem of the club that is physically and financially able to install a cocktail room, preferably off the main lounge, for afternoon, pre-party and party service."

Tamsen's warning about getting a bar of sufficient size if men's business is to be handled, is heartily endorsed by other man-



A large circular mirror and plenty of chromium trim give this prize bar design a decidedly modern touch. Managers are divided on its suitability for clubs.

agers to whom the prize-winning designs were submitted for opinions. Otto Guenther, veteran manager of Westward Ho (Chicago district) says:

"Most clubs make a mistake in not installing a so-called two-man working bar. It is almost impossible to have two men working behind the small bars clubs installed thinking such bars would be adequate for the business that has come since repeal. In our own case only one man is able to give service, while if we had a two man working board, three or possibly four men could work. Demand for cocktails has been larger than expected in most cases and this requires plenty of working space behind the bar.

"The difference in price between the smaller and larger bars is not enough to justify the club in slowing its service or reducing its volume.

"In my opinion the first prize bar makes a very handsome and fitting design for country club use. It is masculine enough to be fitting in the men's locker-room or grill and still, if installed where women could be served, has a happy balance of modernistic elements to please the women."

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What it is

This new Jones "Form Grip" is shaped to fit the contour of the hand. It is recessed for the heel of the hand, ridged where the fingers crease on it, and partially flattened on the right side, which enables a golfer to feel the direction of the club-face.

What it does

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