



TO INSURE TRUE GREENS . . . .  
**STERILIZED SOIL**  
 IS THE FIRST LINE OF IMPREG-  
 NABLE DEFENSE AGAINST  
 FUNGOID DISEASES AND  
 OBNOXIOUS GROWTHS.

*It will pay for its cost in the saving of a single green.*

*It will reduce weed pulling to a minimum.*

*It will destroy those green weeds with their crop of seed.*

*It will reduce the fertilizer bill 50 per cent.*

**T**HE Suresults Sterilizing Equipment has been brought about by the necessity and a means to neutralize the foul and diseased soils in putting greens, with that of pure soil free of contamination, thus aiding greatly in germination and root growth and in the control of all fungoid diseases and the complete extermination of weeds of every description. In fact, this procedure cannot be evaded any longer if true putting greens are to be maintained at a cost within the range of the budgets.

*Specifications of Soil Sterilizing Equipment*  
**Burns Kerosene or Light Furnace Oil No. 1**

Equipment consists of chassis mounted on four wheels for easy mobility and two support arms, hood is of sheet steel construction with four adjustment bolts to arms of chassis, hood is heated by two powerful vaporizing type kerosene burners that produce an intense, clear, steady flame 2,000 degrees to 2,200 degrees F.

Steel hood covers an area 36 inches wide by 42 inches long per heat. Overall length of hood, including handles, 7 feet 6 inches. Overall width of hood, 40 inches.

The equipment consists of a 20 gallon capacity seamless pressed steel fuel tank equipped with pressure gauge with air release, heavy brass hand pump, tank angle valve, filler plug, and mounted on 23 inch roller bearing wheels with handles and foot trip. One 25 foot length of oil hose with unions and two 4½ by 30 inch Vaporizing Type

burners complete with combination needle and valves, strainers, and union connection and four heat intensifying adjustments.

The burners are suspended from supports on the chassis handles. Burners are connected together by means of pipe fittings and unions. Where desired, it is possible to unmount the burners and use them for general heating and weed burning operations by simply uncoupling and free burners from the pipe connection and then coupling to hose which is also provided with a half union. FULL HEAT OIL CONSUMPTION 4 TO 5 GALLONS PER HOUR.

Capacity, loose soil for top dressing or Floriculture use, 2,000 to 3,000 lbs. per hour. Fairway or Lawn surface, 200 square feet per hour plus one man's time. Price above equipment \$360.00 f.o.b. Brooklyn, New York. Net weight soil sterilizing equipment complete, 325 lbs. Shipping weight, 400 lbs.

**SURERESULTS PRODUCTS COMPANY**  
**10 Park Place . . . . . Morristown, N. J.**

this reason we like to comment on how we manage to keep our operating expenses so low and avoid some of the difficulties experienced by others.

"In the first place, we do not use any hand mowers on the course whatever, all tees, approaches, bunkers, etc., are kept properly trimmed with a small Jacobsen power mower and the greens are mowed with two 24-inch Jacobsen power putting green mowers.

"An accurate cost record was kept for all operations on the course during the season and you will note that the cost of greens mowing for 27 greens amounted to only about \$15.56 per green for the entire season, or approximately 13c per cutting.

"With power mowers it is not necessary to mow the greens more than 5 times a week, whereas if hand mowers were used, it would be necessary to mow them every day, the growth of the greens being so heavy that it would be hard to mow a 2 days' growth with a hand mower. The turf actually becomes stronger by letting it grow one or two days each week without cutting. This does not interfere with the playing qualities of the course as days are selected when the play is not so heavy.

"We attribute the immunity of our greens to brown-patch to the frequent brushing and topdressing of the greens, especially during the hot, dry weather. Brushing of the greens whenever the growth appeared stunted or during the early season when the growth was at its height, kept the greens from matting and improved the grain of the bent. This is easily done with a brush attachment and also makes it possible to brush in thoroughly, light applications of good topdressing material. Frequent application of topdressing is, in our opinion, superior to the use of chemicals and provides excellent cushion to hold a pitched ball. The greens were true and fast throughout the season."

### Machinery Relics Costly

Charles C. Worthington, veteran of American golf play and business who heads the Worthington Mower Co., for a number of years has given close attention to comparison of power and manual mowing costs, back to the time when the comparisons dealt with horses vs. tractors for fairway mowing. He is of the opinion that closer attention necessarily being given to course maintenance costs today, will speed adoption of power greens mow-

ing. Commenting on club figures on fairway mowing costs, Mr. Worthington brings out that obsolescence is doing plenty of hidden stealing from many of the country's courses. Referring to a number of representative course maintenance cost records, he notes:

"By looking over these statements of the economies mowing machines have wrought, you will observe that, in the final analysis, the results indicate machines that were the best 4 years ago now cost too much to run in labor and time, to suit the exigencies of the day. Compared with the newest, these old machines are inexcusably extravagant. That is why we frequently advocate exchanging them for a new outfit, rather than to incur the expense of overhauling and renewing the old.

"The situation is somewhat like that of the automobile trade, where it is so often found better policy to make an exchange for the latest model before the older one has lost too much of its exchange value. Until mowing machines get entirely obsolete, they have more or less of an exchange value, oftentimes of considerable amount, which added to the saving of the running cost of the old models, makes the purchase of the new a real economy instead of an expense.

"I am heartily in accord with efforts to lower the construction cost of golf courses and the expense of their upkeep. Both of these objects may be obtained today without impairment of the best standards, through the exercise of good judgment alone—first, in the selection of the architect, then of the greenkeeper, and then of the machinery. The time has passed when it was thought necessary to spend huge sums on the construction of a course—to make hills where valleys were, and putting greens of swamps. It has only required, we have found, to pay a little more attention to business details in the selection of the site, and a little less to the feathers of the big chiefs of golf architecture. Golf today may be readily made here, as it has been in Great Britain since the beginning, a game within the reasonable reach of all."

**O**VER-FERTILIZATION can be just as harmful to turf as under-fertilization. A fairly fertile loam is best for putting greens. The use of enormous quantities of manure, humus and similar materials is not only a waste of money but often most detrimental to proper grass growth.



## Tramping Feet pack down your greens hard as a laborers tamper

**T**HE problem, then, is to renovate with a satisfactory product that will maintain the soft, resilient cushion-turf you want.

Sand, loam, ordinary fertilizers, water, etc., simply re-act to make the condition worse instead of better.

What's the *right* answer?

Here are two materials that *will* correct such a condition—even when you have to work "from the top, down."

First, DRICONURE — a natural base fertilizer of concentrated cow manure and peat moss. It performs the double function of creating a cushion-turf and feeding at the same time. The peat moss humus creates a "fine" condition of soil and maintains the correct amount of moisture (neither too much nor too little) to dissolve plant food into available liquid form. And it makes a turf that springs back into position

after each step like an air cushion—yet firm and strong for fast play.

Second, SORBEX—This new material is destined to be of tremendous help in maintaining greens in good condition. A moss peat 25 times finer than any peat moss, it can be used from the top down most successfully and will penetrate the turf right down to the roots where even the finest sand could not reach. It will improve any type or kind of soil needing humus.

Try SORBEX on any packed down or worn out green and you will quickly see that you can't get through a whole season without it. Packed in convenient size bags containing half a yard, it can be readily transported, easily handled and there is no breaking-up problem. The fine dust-like particles crumble readily to the touch.

These two materials should be a regular part of every club's maintenance equipment. Let us send you samples, literature and prices.



# ATKINS & DURBROW, INC.

G-165 John Street, New York, N. Y.

# Physical and Chemical Factors in Proper Topdressing

By J. F. FONDER

**T**OPDRESSING AT proper intervals is one of the most important cultural practices involved in the production of beautiful bent grass turf. On putting greens topdressing is necessary for two reasons: to maintain a perfectly true surface and to cover the stolons which otherwise would cause the turf to become too deep and spongy to be satisfactory. Much of the excellence of creeping bent greens depends upon the proper use of correct topdressing material.

Every greenkeeper knows what constitutes good topdressing material. The formula is always approximately the same: 3 parts loam soil, one part organic material, one part sharp sand—these ingredients being composted together or at least thoroughly mixed before being spread. But it is easy to tell what a good topdressing material should consist of and quite another to mix it to conform to the formula. One has only to examine the different topdressing materials used upon a number of courses to realize the truth of this.

The reason for so many putting greens being improperly topdressed is that those responsible for their care do not distinguish correctly between satisfactory and unsatisfactory ingredients for the topdressing material. Especially is this true of the soil fraction, which, it is admitted, should be a loam, but which may vary from a mass of raw peat to a mass of silt or clay. What appears to be necessary is a better knowledge of what constitutes a loam soil.

## Loam Is Texture Index

The term "loam" refers to the texture of a soil, or the size of the particles entering into its composition, and has no bearing whatever upon the fertility of the soil. Most fertile soils consist of varying proportions of different sized soil particles, ranging from particles too small to be distinguished individually to those one-eighth inch in diameter. The different groups according to size which are recog-

nized by the Bureau of Chemistry and soils, U. S. dept. of agriculture, are: fine gravel, coarse sand, medium sand, fine sand, very fine sand, silt, and clay.

Each of these groups possesses definite physical properties which are reflected in any soil of which they may be a part. As a result, soils are classified according to the physical properties resulting from the presence of the different soil particles. Thus, there are clay soils, silty clay soils, clay loams, loams, sandy clay loams, sandy loams, sandy soils, and variations of these. A clay soil is one in which properties of the clay group entirely hide those of all the other groups; a clay loam is a soil in which properties of the clay group are still predominant but those of other groups are also apparent; loam soils exhibit properties of all groups in such a manner that those of no particular group are more evident; sandy loams are loams in which there is sufficient sand to make the properties of the sand group slightly more evident than those of the other groups.

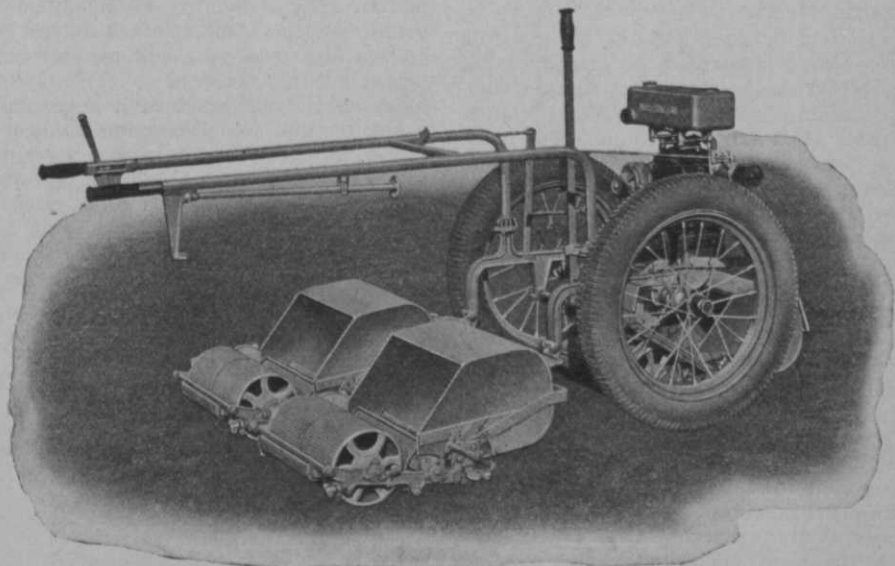
## Identify Soil by "Feel"

It is possible to determine to what class a soil belongs by examining it carefully by "feel." To do this rub a small quantity between the thumb and the index finger. It is well to examine the soil in a damp condition and again when fairly wet. A sandy soil so examined will produce a very gritty feeling as it is rubbed and there will be practically no evidence of any finer particles. A handful pressed tightly into a ball will not hold its shape but will crumble immediately when not supported. A clay soil when damp feels sticky and appears to resist rubbing between the thumb and finger. When wet it is very slick and there is a total absence of grittiness. If such a soil is pressed into a ball it retains its shape and can not readily be broken apart. A loam soil exhibits a moderately gritty feeling and yet there is apparent a noticeable stickiness and resistance to rubbing. When pressed

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LAWN TRACTORS LAWN MOWERS ROLLERS  
POWER AND HAND PUTTING GREEN MOWERS  
TEE STANDS TEE MARKERS BALL LOCATORS

For 17 years the Worthington Mower Company has occupied the leading position among lawn mower manufacturers by virtue of its incomparable engineering staff and by constant study of the changing requirements of fairway and putting green service.



The "Scout" Overgreen. The greatest improvement ever made in the mowing of putting greens. It cuts a green of average size in less than ten minutes. This performance has never before been approached. Carriers permanently attached to the cutting units for travel between greens.

THE HISTORY OF THE WORTHINGTON MOWER IS THE HISTORY OF LEADERSHIP AND PROGRESS.

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The Largest Manufacturers of Gang Mowers in the World

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*Agencies in All Principal Cities*

into a ball a loam soil retains its shape and yet crumbles readily when unequal pressure is brought to bear upon it.

A loam soil naturally possesses a physical condition favorable to growth of grass. At times this may have been altered by some force or combination of forces but it can very easily be re-established through proper cultural methods. As has been said, the term "loam" does not refer in any way to the fertility of the soil but as far as its value for topdressing is concerned this is of much less importance than its physical properties.

### Organic Need

It is seldom that a loam by itself is exactly what is wanted in a topdressing material. Usually it does not contain sufficient organic material to give the most desirable moisture conditions. To overcome this, a quantity of desirable organic material should be mixed with it. A well-rotted manure which has composted for a number of years, some of the commercial peats, or certain local peats may be used satisfactorily. Any organic material should be sufficiently fibrous to prevent the loam from packing down to such an extent that a too hard playing surface is produced and yet should be finely divided to encourage desirable moisture conditions in the surface of the green. Any peat or other organic matter used should possess a neutral or acid reaction, or the combination of the organic material and the soil should possess such a reaction. As much care should be used in selecting the organic material as in selecting the loam soil.

### Chemical Balance

Unless there is considerable coarse and sharp sand in the loam soil selected for use in the topdressing material, some should be provided. This ordinarily can

be done best by adding a proportion of torpedo sand, preferably that suitable for concrete construction. Many sands in the Middle West contain varying quantities of lime and this should be allowed for in the mixing. To overcome an alkaline reaction in a sand, the soil and the organic material should be more acid and the quantity of sand used should be reduced as low as is consistent with providing the proper physical conditions in the final top dressing material.

One further precaution should be advanced. There is available in every metropolitan area a quantity of black material sold under the name of black loam. Some of this is a true loam soil possessing sufficient organic material to give it a deep black color. But much of it is essentially a black muck soil possessing none of the desirable qualities of a loam. Such muck is almost entirely of organic origin and is not a mixture of the different sized soil groups described for a loam. Being largely organic material in fine state of decay it will retain a large amount of water but will retain it so tenaciously that the plants may not be able to get enough in times of drought. Upon becoming dry the muck may assume either a flinty or a powdery condition which repels water and is very difficult to moisten again. Such materials as this should be guarded against in the selection of a loam soil for topdressing purposes.

New York City.—Empire Golf Course Supplies, Inc., 11 E. 44th st., has issued its 1932 catalog of seed, mowing equipment, fertilizer, and many other items used in course maintenance. The book is a quite complete and handy volume for the reference library of the greenkeeper or chairman. A copy will be sent free on request.



## The TORO "SOD-KUT" for Perfect Sod

A hand power tool that cuts sod with smooth, even edges and uniform thickness . . . 13½" wide, any length. Easy to operate . . . two men can cut 15,000 square feet of sod a day. Does not damage lawn. Write for full information.

TORO MANUFACTURING CO., 3042-3168 Snelling Ave., Minneapolis, Minn.

# How Greensmen's '32 Job Hopes to Protect Course Standards

By RALPH HAMILTON HALL

**T**ODAY the average greenkeeper in the southeastern states is often faced with the almost insurmountable problem of maintaining his course in the so-called "pink of perfection" after having had his green-committee slice off a very considerable percentage of his budget allowance.

How to find the answer to the problem no one knows, or seems to know and after talking to a great number of green-chairmen and greenkeepers the only thing that I find myself certain about is that IT MUST BE DONE.

Greenkeepers at municipal and public fee courses are having one large and hearty laugh over the plight of their brethren employed by the private clubs. Depression has caused a great number of resignations from clubs and added to the

horde of players playing the "muny" and public fee courses with the result that several municipal superintendents in the vicinity of Atlanta actually turned back a surplus for the past year and during that year dressed up their courses.

For those of you (and us) who belong to the army headed by General Depression we can manage to get by provided that we map out a plan of campaign and then stick to it. Here are a few of the ways that we can come thru 1932 with colors flying:

## Mechanize for Economy

This is still the machinery age and the quicker some of us snap into the realization of it the better off we will be. Labor saving equipment is vitally necessary if we are to make our courses appear to be,



## For Every Requirement

Ask your dealer for prices on Dickinson Tested Quality grass seeds of all varieties for green, fairway and rough. Name of nearest dealer sent on request.

*Experienced Greenkeepers know what this name means*

# Dickinson for Tested Quality Grass Seeds

There is nothing you buy of which it can be more truly said than of seed, that the first cost is the least. In times when every dollar must be conserved then, more than ever, does it pay to buy, and insist upon getting the finest, cleanest seed obtainable.

The name Dickinson on tag or bag is assurance of expert re-cleaning, accurate testing, utter dependability.

**THE ALBERT DICKINSON CO., CHICAGO**

Minneapolis New York Buffalo Boston Pittsburgh

# BENT GRASS SEED

**I**F we are going to bring back permanent PROSPERITY the American people must bend every effort toward co-operating with one another, not only in demanding a decrease in the cost of government, but in our purchases we should give preference to commodities produced in our own United States of America, which will KEEP AMERICAN LABOR EMPLOYED.

ECONOMY and EFFICIENCY in these times more than ever are the watchwords of every alert business man. Due to the deflated condition of many golf club treasuries, it is necessary for the person in charge to look carefully into VALUES before making his purchases for seed supplies.

Native, acclimated, upland grown Rhode Island Bent and Velvet Bents produce the highest type turf at the least first cost and subsequent costs of maintenance.

**A. N. PECKHAM - - - - Kingston, Rhode Island**

## HAVE BETTER TOP-DRESSING ... and Save Money

**T**O have the best possible top-dressing for greens and fairways, use a KEMP Power Soil Shredder. When it makes compost, it's the finished product ready for use.

A KEMP greatly reduces time and labor costs and makes fertilizer go further. While initial cost is small, operating and maintenance expense is negligible.

KEMP Shredders are powered with either gas or electric motor—or without power for operation with tractor. Get all the

facts now! Write for catalog. KEMP MANUFACTURING CO., Dept. 1981, Erie, Pa.



Complete with built-in gas or electric motor. Shreds and sifts in one operation.

**KEMP Power SOIL SHREDDERS**

## SEE THE 36-INCH MASTERS Perfect Distributor

For the uniform distribution of fertilizer, top dressing, grass seed, etc.



**EASY  
TO  
OPERATE  
DOES  
PERFECT  
WORK**

The 36-inch size is a splendid machine for your greens—Efficient and Economical.

Has simple regulating device for spreading any desired amount. Positive shut-off controlled from the handle. Rotary agitator. Non-corrosive hopper bottom and working parts.

**THREE SIZES**

16"—illustrated above.  
24"—with double disc wheels, 2 3/4" tread.  
36"—with double disc wheels, 2 3/4" tread.

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Combination — Master Keyed — Self Locking

Rockford LOCKER and SHACKLE LOCKS provide the maximum in safety, convenience, durability and economy. The combination feature eliminates lost and misplaced key annoyances. The master key feature enables the attendant to gain access to lockers, when authorized by members. The self-locking feature guards against carelessness thru assuring that the lock is locked, automatically, when the door or shackle is closed. Write for booklet which explains how Rockford Locks solve club lock problems.



Combination Locker  
Lock No. 267

»»» National Lock Co. «««  
Rockford, Illinois



Combination Shackle  
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and be, perfectly conditioned. With the proven ability of power greens-mowers which now sell at an attractive price it is possible for us to maintain our greens at a saving in labor which will, over a period of one year, exceed the cost of the equipment and not lower course standards.

The same is true of top-dressing machines—to my mind the most necessary and important piece of equipment, with the exception of mowers, used on or about a golf course. It also holds good with tee-mowers, compost mixers, etc.

One can cut fairway maintenance costs to the bone and, when funds are once again available, very quickly bring the fairways back to their original condition but this does not hold true in the case of the greens. Too, anyone can pardon and even forget a cuppy fairway lie or two, as long as the putts—both the long and short ones—go kerplunk. In par golf about 50 per cent of the strokes are on the greens so, take the gentle tip of keeping your greens perfect even if you get gray-headed over the condition of the rest of the course. In other words, top-dress regularly and frequently.

Another item of greens maintenance ex-

pense which runs up into large red figures is that of watering. I suggest consideration of watering not more than two or three times a week but, when you do water, soak them 4 to 6 inches deep with a sprinkler that sprays almost a mist. Use several of them on each green at the same time so that the entire surface becomes thoroughly soaked. Water, hose, sprinklers and the labor to water cost plenty of money, so incorporate plenty of peat moss in your top-dressings and spike your greens thoroughly. The moisture-holding content of the peat will save you additional funds.

### Group Men for Most Work

Another good habit to get into is that of working your men all together whenever possible. Scatter them out without supervision and they waste 40 per cent of your time. Stick with them where you can accomplish the job and then move on to the next one.

Wages, in a lot of cases, have been slightly reduced but, in a majority of instances, agreements have been reached to lengthen the working day as soon as Mother Nature keeps the sun on the job longer because of the already low wage

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PRICES  
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- One to Six Balls at a Time.
- Ejects Balls When Cleaned.
- It Does Not Splash.
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## Cocoos Bent Seed

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A Specially Formulated Ration for Turf and  
Turf Only. Used by Leading Clubs

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Fresh, Viable Stock, One Year Old

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Write today for information, literature and  
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scale prevailing in the southern and southeastern states.

Too many courses are suffering from insufficient fertilization. This is to be regretted but there doesn't seem to be any mid-way point on this item. You either do or you don't. Personally, if I were a green-chairman, I would recommend to the directors of a club that they close 9 of the holes entirely and use the available funds to maintain one side in perfect condition once I was convinced that I would absolutely not have funds enough to maintain the entire 18 holes.

Last, but not least, maintain your course maintenance equipment. You simply cannot do good work inexpensively with poor tools or dull ones. Keep all mowing blades sharp and machines in the same perfect adjustment. Tractors and all gas engines should be maintained by a responsible mechanic and not doctored by one of the course laborers. Have them inspected and adjusted periodically and, at the first indication of trouble of any sort, have the trouble fixed immediately. It's always cheaper in the end and we may have to do things cheaper this coming year.

## "NEXT BEST TO RAIN" CLAIMS DOUBLE ROTARY SPRINKLER

Kansas City, Mo.—Double Rotary Sprinkler Co., Coca Cola Bldg., explains basis of its claim that Double Rotary sprinkler performance is "next best to rain" in an interesting booklet available direct from the company or from golf course supply houses.

The booklet details construction of the sprinkler responsible for even, gentle and extensive distribution of water by the device. Areas up to 80 ft. diameter are watered by Double Rotary. Bronze gears running in oil bath are mentioned as reason why the sprinkler requires no attention or repairs.

## ATKINS & DURBROW HAVE MID- WEST DRICONURE PLANT

New York City.—Atkins & Durbrow, Inc., 165 John st., advises that mid-western business in Driconure has increased so decidedly that plant arrangements to serve the central territory have been completed with the Brook Hill Farms, Genesee Depot, Wis., near Milwaukee. The company's business on Sorbex, a super-fine peat moss, also is registering big early season sales. Emphasis put on aeration of greens by turf specialists in winter school and convention addresses has given Sorbex sales a boost.

## "Does scythe work of eight men"

"Your mower does the scythe work of eight men in a day. Am delighted with it. Expect to buy and put to work two more Gravelys this year," writes Manager of one of country's best known Golf Courses.

Combination Sickle and Rotary type mower indispensable for both large and small courses. With narrow,



Single - Wheel Traction, it works places no other mower can touch. Cuts tallest, toughest weeds or grass. Mowers out in front, with Swivel Action, do perfect job on steep sides of bunkers and traps, over roughest ground, on hillsides. Eliminates 75% hand - trimming. The Coupon brings positive proof.

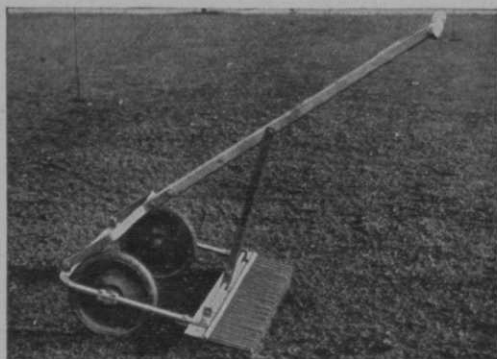
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## The TORO Del Monte Greens Rake

To maintain a true putting surface, use the Del Monte Rake regularly for removing the grain from creeping bent or Bermuda grass putting greens and for raking up matted grass for proper cutting. Write for full information.

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