Fairway Watering

By FRED HOLMES, Green Committee Chairman
Lafayette Country Club, Lafayette, Indiana

The long, dry spell recently ended has emphasized the need for a fairway watering system if we are to have reasonably good lies for our second and approach shots. The Grounds committee has kept this problem in mind for the past seven years and whatever pipe has been installed during that time has been laid with a future fairway watering system in mind. The watering of greens and tees is a separate problem and will not be discussed in this article.

The earliest fairway watering system known to your committee is that which I saw at the Los Angeles Country Club in 1919. Regular lawn type sprinklers with hose were employed and were permitted to run through the day. The grass was kept in splendid condition, but there was a great deal of interference with play.

An improvement in this is the system developed at the Minikada Country Club at Minneapolis and first seen by us about 1922. This is known as the "Sea Serpent" method and our club purchased one of these Sea Serpents about 1924. This sprinkler is in reality four sprinklers on a chassis of pipe and guy rods mounted on wheels so that it can be pulled about the fairway. This unit proved of great value when No. 7 fairway was re-seeded and has been used to some extent on Nos. 1 and 7 fairways.

We soon discovered, however, that it was very difficult to move this unit from place to place, especially with our deep gulleys and steep hills. Moreover, it was frequently molested when left on No. 1 fairway. For these reasons, a second unit has never been purchased. For clubs without deep gulleys or steep hills and where club property may safely be left out at night, this method is giving satisfaction and is being employed now at Meridian Hills with reasonably good success.

Another system is reported in use at the Highland Country Club, at Jackson, Mich., and on several other courses. Its watering unit consists of a sprinkler mounted at the end of a pipe about 25 feet long. This pipe swings around in a circle with the opposite end as the center of the circle. This gives the sprinkler a coverage of a circle 100 feet in diameter. The units are not very heavy so that they can be moved from position to position with reasonable ease, but they are rather too bulky and heavy to take inside at night.

As a rule, only the principal playing areas are watered. The first 150 yards is seldom irrigated.

WHAT IS THE COST OF INSTALLATION?

The question naturally arises as to what is the cost of installation of a fairway watering system. Some clubs have had to spend more than $60,000 for an 18-hole installation. The lowest cost for 18 holes with which we are familiar is that at the Highland Country Club which we have been told cost approximately $16,000.

At Highland, they have a source of water easily available as well as a source of cheap power and it is probably that they did not have to build a special pump house. In the case of the more costly developments, a large part of the money has been spent for reservoirs, wells, pump houses, power supply, pumps, etc.

In our case, we are fortunate in having a city water supply and in having planned for the past several years for fairway watering. The mains are already laid for Nos. 1, 6, 7 and 8. The watering system for No. 1 fairway, including the sprinklers, was installed at a cost of less than $200. Other fairways, however, will cost more due to the fact that the piping was already laid on No. 1 with the exception of the short laterals, and the area watered is rather small.

"TRAVELER" TYPE HAS MANY ADVANTAGES

It is the present opinion of the committee which, however, expects to study the matter in greater detail before reaching a final decision, that Nos. 5, 7 and 8 fairways could best be taken care of by sprinklers of the Economy Irrigation Co. "Traveler" type. Most of the pipe for this use is already installed so that it would only require a small amount of pipe, a sufficient number of hose bibbs.
and three "Travelers" together with the necessary hose. Nos. 2 and 9 fairways are so short as not to require watering.

It is now believed that the same system which was installed on No. 1 would best meet our requirements on fairways 3, 4 and 6. This system would cost slightly more than one using the "Travelers," but it has the advantage that the sprinklers can be put under lock and key when not in use and experience has shown that on the upper 6, when equipment is left outside, it is likely to be damaged. It is regrettable that this is so, but on several occasions in the past equipment left out at night was found damaged in the morning.

Another advantage of this system is that it requires no hose and there is nothing left in the rough to interfere with play. On Nos. 5, 7 and 8 it should be possible to remove the "Travelers" to spots where play will almost never occur, but on Nos. 3, 4 and 6 this would be difficult and costly. The "Traveler" on No. 5 could be placed in the tool shed when not in use.

The committee believes that where sprinklers can be allowed to run all night and then left in the rough or a nearby shed all day, the "Traveler" type of sprinkler is the cheaper but where sprinklers must be transported a considerable distance and used in early morning only, the Buckner system is the cheaper in first cost in operation.

The use of "Travelers" on Nos. 5, 7 and 8 and the Buckner Snap Valve and slow motion sprinkler system on Nos. 1, 3, 4 and 6 would give a total overall cost of less than $3,000, a cost which is exceedingly low in comparison with that of other clubs. The installation need not be made all in one year but could be spread over two years. For instance, we could supply a "Traveler" for No. 8 and a snap valve system for Nos. 3 and 4 for a modest sum.

Worthington Builds New Mower

Edward H. Worthington, formerly vice-president of the Worthington Mower Company has resigned and taken up active work with a new firm to be known as the Crown Mower Co., with temporary offices at 168 East 74th Street, New York City. As its president and consulting engineer, Mr. Worthington believes that many of the difficulties which greenkeepers, superintendents, etc., of golf

fairways and lawns have encountered in the past can be largely, if not entirely eliminated. Mr. Worthington has had 17 years' experience in the gang and power mower field and says he feels justified in making the assertion that the advent of the "Crown Unit" for fairways and lawns will create a considerable sensation.

Among its features will be the non-restriction of the use of the Crown Unit to its own multiple gang frame. The units which are 30 inches in cutting swath may be used in frames of Toro, Worthington or Pennsylvania types.

A simple design for removing the fly knife reel I know will be hailed as a great convenience to the maintenance problem. (Patent pending.)

A single hand adjustment which is positive in its action causing constant parallel and rigid bed knife action is a feature well worth investigation in itself. (Patent pending.) A reversible special alloy double edge bed knife steel is used.

The large steel roller revolving on high grade bearings is regulated by hand adjustment. The adjustments are graduated positively from 1/2 inch to less than 1/16 inch and yet by shifting the roller brackets, the height of cut is gauged from 1/4 inch to 6 inches. This will enable the operator to adjust at will to any height of cut required.

It is lighter than any 30-inch unit on the market of comparable design and yet its box construction eliminates entirely weaving of the side frames, a fault quite common and detrimental in many standard units in the field.

The machine requires no oil or grease! It is packed with a Crown lubricant and guaranteed for one year.

Sturdily constructed throughout, the maker believes it is the finest product ever presented on the market.

Descriptive catalogues and prices will be available shortly.

Trade News About Turf Culture

CHESTERTON, IND.

A public park for Porter along the banks of the Little Calumet river, west of Waverly road, is in prospect. The tract will comprise from 13 to 25 acres and is held by five property owners, all of whom have accepted tentative proposals to combine their holdings into one tract.

Alec Carlson, Chester Simmons, and Walter Sexton have been appointed as a park committee by the Porter Chamber of Commerce and are working out the details.

*S*

SWEETWATER, TEXAS

This city has been asked for the services of 200 members of the Civilian Conservation Corps for the purpose of making a park of 500 acres on the shore of Lake Sweetwater.
Questions and Answers

Devoted to the discussion of intimate problems on turf culture and plant growth. We are an international authority on these subjects. Send in your contributions—$1.00 will be paid for each one.

QUESTION:—Can you send me, or publish in your magazine some reliable data and information as to the use of iron sulphate in eliminating clover, chickweed, etc., from golf greens, also as to its use in solution in powdered form, as an ingredient in compost or fertilizer mixtures, rate of application, etc. Also what is its effect on the soil in retarding growth of grass?—V. C. Doerschuk, Massena, New York.

ANSWER:—The principal use of iron sulphate in America today is to eradicate weeds in turf, particularly dandelions. Experiments have been conducted by many of the State Experimental stations in the use of iron sulphate as a weed spray, and they have met with success with certain weeds.

The spraying method is preferred and it is customary to use 50 gallons of 20% solution of iron sulphate per acre.

Iron sulphate has been found to kill chickweed and purslane after repeated sprayings. Heal-all, gill-over-the-ground, broad and narrow leaved plantain, have either been killed or badly injured by the spray. The iron sulphate will not kill crab grass and other weed grasses. It must also be remembered that it is injurious to white clover.

Iron is an element of vital importance to the growth of green plants. A certain amount of iron seems necessary as one of the factors in the normal development of chlorophyll (leaf green), although it is not regarded as a constituent of the organic bodies which make up this substance.

QUESTIONS:—Should a lawn be planted in the fall or in the spring?

ANSWER:—Both. Make one-half your planting not later than early October and sow the balance of your seed in March when the ground has “heaved” from freezing. As soon as possible after seeding, ground should be rolled when dry. Fertilization will be much more effective if put on in the late winter while the ground is in this heaved condition.

QUESTION:—Fertilizers are sold to us, guaranteeing certain percentages of nitrogen, phosphoric acid and potash. Isn’t one 8-6-2 fertilizer just as good as another made in the same proportions?

ANSWER:—No. It is not. The 8-6-2 percentages will be the same possibly, but the character of filler used will make the difference in the value. At least one-third of any complete fertilizer you buy, will be filler, in order to bring the finished product up to the proper proportions. If your filler happens to be some clean organic product which is or will early become a humus, the chemicals which provide the greater part of the 8-6-2 will become more rapidly available for plant food. If the filler used is lime, garbage tankage or similar inferior products, the action of the fertilizer will be delayed, especially if your soil is deficient in organic matter. (Penn.)

QUESTIONS:—Why does a clay soil produce so much better bloom than other soils, and better looking?

ANSWER:—When the leaves of a plant begin to mature, it begins to bloom. If it is planted in a too rich soil and the tendency is to continually grow tender foliage, the start of maturity will be delayed and there will be but small imperfect bloom. If plants are grown in a soil which will hasten maturity, such as a good vegetable garden, the plant will be matured so early that but a normal bloom will result. A clay soil will start an early maturity in the leaf but there is a longer period before the termination of maturity and a much larger and better bloom is the result. (Ohio)

QUESTION:—Should sulphate of ammonia be used in preference to nitrate of soda for an early spring fertilizer or is cottonseed meal or soya bean meal a better source of nitrogen if mixed with early topdressings?

ANSWER:—Ammonium sulphate and nitrate of soda are both very quick acting fertilizers. Sodium nitrate is detrimental in many ways and
should not be considered as replacing ammonium sulphate.

Our soil bacteria work, live and act better if given something to do even if it be but to make the ammonium sulphate into a nitrate form. Cottonseed meal and soya bean meal, mixed with topdressing, if only a nitrate feeding is needed for rapid growth, employ our soil bacteria to better advantage than do chemical fertilizers. It will leave a more lasting feeding and will leave eventually, a humus addition to the soil. (Ohio)

**QUESTION:** The backs and high spots on our greens are mown carefully but we have trouble to keep these parts in good turf. What would be a reasonable cause?

**ANSWER:** Close mowing would effect these areas but the most reasonable cause for trouble would be the “run off” of water without penetration to a sufficient depth. Slow, long sprinkling over these areas, can be the only relief. (New York)

**QUESTION:** We expect to fertilize our fairways. What is the best time of year to do this?

**ANSWER:** Late in the winter while the soil is porous from freezing. Heavy rolling at this time can cause no damage if the ground is sufficiently dry and it may save some fertilizer loss from wash. (Illinois)

Trade News About Turf Culture

**KENILWORTH, ILL.**

With the appointment recently of Jens Jensen, landscape artist, to direct the proposed park project for the village of Kenilworth, first steps were taken in the development of the old Mahoney farm in the suburb into a natural park.

The farm, on Sheridan road in the south limits of the village, was devised to the town by Mary Mahoney two years ago. She provided that it be transformed into a bird sanctuary and wild flower preserve so the natural park may serve as an outdoor classroom for nature studies by school children and garden enthusiasts.

**BOWLING GREEN, KY.**

Among the number of progressive and important steps taken by the city administration, is that which will have for its ultimate aim the establishment of a municipal park and playground that will place Bowling Green in line with all the progressive cities of the country.

Bowling Green will never spend money more wisely than when the city has finally established and put into full operation a park of this nature, fully equipped with swimming pools, tennis courts, bridle paths, and golf courses, all of which should be free for the use of the masses.

**MOLINE, ILL.**

Moline city council at a committee of the whole session voted unanimously to authorize the city attorney to prepare an ordinance calling for a $60,000 bond election to provide funds for the purchase of ground on which Moline airport is situated.

Application to the federal government for funds amounting to between $100,000 and $150,000 to develop the George Rogers Clark Memorial Park, west of Springfield, will be made within the next two weeks.
Market Place and Buyers' Guide

Where reputable manufacturers and dealers list and describe their products. Greenkeepers are requested to write the Market Place for any special information they desire about supplies or equipment.

Names and Addresses of Leading Manufacturers and Dealers

Royal Products Company, 214-216 S. Charles St., Baltimore, Maryland.


Worthington Mower Company, Stroudsburg, Pennsylvania.


Toro Manufacturing Company, Minneapolis, Minnesota.

G. B. Lewis Company, Watertown, Wisconsin.

J. M. McCullough's Sons Company, 316 Walnut Street, Cincinnati, Ohio.

Seaside Bent Company, 115 Broad Street, New York City, New York.


Peter Henderson & Company, 35 Cortlandt Street, New York City, New York.

O. M. Scott & Sons Company, Marysville, Ohio.


Illinois Grass Company, 75 E. Wacker Drive, Chicago, Illinois.

Lyman Carrier Products, Granger, Indiana.

J. G. Peppard Seed Company, Kansas City, Missouri.

American Cyanamid Sales Company, 535 Fifth Avenue, New York City, New York.


McClain Bros. Company, Canton, Ohio.


Mallinckrodt Chemical Works, 2nd and Mallinckrodt Streets, Saint Louis, Missouri.

Cleveland Charcoal Supply Co., 3905 Jennings Road, Cleveland, Ohio.

Wood Charcoal Research Bureau, P. O. Box 356, Jacksonville, Florida.

Royer Foundry & Machine Company, 158 Pringle Street, Kingston Station, Wilkes-Barre, Pennsylvania.


Armour Fertilizer Works, Atlanta, Georgia.

Buckner Mfg. Company, Fresno, California.

Campbell Irrigation Company, Woodbury, New Jersey.


The Budd Mfg. Company, Ravenna, Ohio.

Double Rotary Sprinkler Company, 109 Coca Cola Bldg., Kansas City, Missouri.

Pennsylvania Lawn Mower Works, Primos, Delaware County, Pennsylvania.

E. G. Staude Mak-A-Tractor Company, 2630 University Avenue, St. Paul, Minnesota.

The F. & N. Lawn Mower Company, Richmond, Indiana.


International Harvester Co. of America, 606 South Michigan Avenue, Chicago, Illinois.

Milwaukee Sewerage Commission, P. O. Box 2079, Milwaukee, Wisconsin.

Nitrates Agencies Company, 104 Pearl Street, New York City, New York.

Atkins & Durrow, Inc., 165 John Street, New York City, New York.

Bayer-Semesan Company, Wilmington, Delaware.


Sherwin-Williams Company, 601 Canal Road, N. W., Cleveland, Ohio.

T. W. Wood & Sons, 11 South 14th Street, Richmond, Virginia.

Perfection Sprinkler Company, Plymouth, Michigan.

Roseman Tractor Mower Company, 810 Church Street, Evanston, Illinois.

Hyper-Humus Company, Newton, New Jersey.


Henry A. Dreer, 1306 Spring Garden Street, Philadelphia, Pennsylvania.

A. N. Peckham, Kingston, Rhode Island.

Philadelphia Seed Company, 103-105 Arch Street, Philadelphia, Pennsylvania.

Fate-Root-Heath Company, 833-869 Bell Street, Plymouth, Ohio.

Walter B. Heins, Inc., 237 South Jackson Street, Lima, Ohio.

J. F. Buel, Woburn, Massachusetts.


Diamond-Calk Horseshoe Company, Duluth, Minnesota.

R. S. Horner, 61 Eagle Street, Geneva, Ohio.

Reade Mfg. Company, Jersey City, New Jersey.
Market Place and Buyers' Guide

Ant Control
Royal Products Company

Ball Washers
J. Oliver Johnson, Inc.
Worthington Mower Company
Ideal Power Lawn Mower Co.
G. B. Lewis Company

Ball Locators
Worthington Mower Company

Bent-Coos County State Sealed and Certified
J. M. McCullough's Sons Company
Seaside Bent Company

Bent-Stolons
O. M. Scott & Sons Co.
Stump & Walter Co.
Ohio Humus Products Co.
Illinois Grass Co.
Lyman Carrier Products

Bluegrass—Seed
J. G. Peppard Seed Company

Brown Patch Control
Stump & Walter Co.
J. Oliver Johnson, Inc.
American Cyanamid Sales Co.
C. E. Dolge Company
McClain Bros. Co.
Arthur Boggs & Co.
Mallinckrodt Chemical Works
Lyman Carrier Products

Charcoal
Cleveland Charcoal Supply Company
Wood Charcoal Research Bureau

Coccon
Lyman Carrier Products

Compost Distributors
Toro Mfg. Company

Compost Mixers
Toro Mfg. Company
Royer Foundry & Machine Co.
Kemp Mfg. Company

Cultivators (Disc)
John H. Graham & Co., Inc.

Cultivators (Spike)
John H. Graham & Co., Inc.

Dump Carts
Toro Mfg. Company
J. Oliver Johnson, Inc.
Worthington Mower Company
Peter Henderson & Co.
Ideal Power Lawn Mower Co.

Fairway Fertilizers
Synthetic Nitrogen Products Corp.
Armour Fertilizer Works
Lyman Carrier Products

Fairway Irrigation
Buckner Mfg. Co.
Campbell Irrigation Company
Economy Irrigation Company
Double Rotary Sprinkler Co.
Lyman Carrier Products

Fairway Mower Blades
The Budd Mfg. Company

Fairway Mowers
Pennsylvania Lawn Mower Works
Toro Mfg. Company
Ideal Power Lawn Mower Company
Worthington Mower Company
The F. & N. Lawn Mower Co.
National Mower Company

Fairway Tractors
International Harvester Co. of America

Fertilizers
Milwaukee Sewerage Commission
J. Oliver Johnson, Inc.
Peter Henderson & Co.
Nitrate Agencies Co.
Atkins & Dubrow, Inc.
American Cyanamid and Chemical Corp.
Lyman Carrier Company
Bayer-Semesan Company
Synthetic Nitrogen Products
Armour Fertilizer Works

Fertilizer Distributors
International Harvester Co. of America
Synthetic Nitrogen Products Corp.

Flag Poles
Ideal Power Lawn Mower Company
Standard Mfg. Company

Flexible Steel Mats
J. Oliver Johnson, Inc.

Fungicides
Bayer-Semesan Company, Inc.
Sherwin-Williams Company
Mallinckrodt Chemical Works

Golf Course Construction
Ohio Humus Products Co.

Golf Equipment
Stump & Walter Co.
Peter Henderson & Co.
Ideal Power Lawn Mower Company
T. W. Wood and Sons
Worthington Mower Company

Greens Fertilizers
Armour Fertilizer Works
Synthetic Nitrogen Products Corp.
Lyman Carrier Products

Greens Sprinklers
Buckner Mfg. Co.
Double Rotary Sprinkler Co.
Perfection Sprinkler Co.

Hand Mower Blades
Budd Mfg. Company

Hole Cups
Standard Mfg. Company

Hole Cutters
Ideal Power Lawn Mower Company
Standard Mfg. Company

Hole Rims
Ideal Power Lawn Mower Co.

Horse Drawn Mowers
Pennsylvania Lawn Mower Works
International Harvester Co. of America
Worthington Mower Company
Ideal Power Lawn Mower Co.
Roseman Tractor Mower Co.

Hose
Peter Henderson & Co.

Humus
Hyper-Humus Company
Ohio Humus Products Co.

Hydro-Mixer
McClain Brothers Company

Insecticides and Fungicides
American Cyanamid and Chemical Corp.
Sherwin-Williams Company
Bayer-Semesan Company
Arthur Boggs & Co.
Mallinckrodt Chemical Works
Lawn Mowers
Pennsylvania Lawn Mower Works
Toro Manufacturing Company
Worthington Mower Company
Ideal Power Lawn Mower Co.
The F. & N. Lawn Mower Co.
Jacobsen Manufacturing Company

Lawn Seed
Henry A. Dreer
O. M. Scott & Sons Co.
J. Oliver Johnson, Inc.
Stump & Walter Co.
A. N. Peckham
Peter Henderson & Co.
J. M. McCullough's Sons Co.
Illinois Grass Co.
Philadelphia Seed Co.
Seaside Bent Company
Lyman Carrier Products

Lime Spreaders
International Harvester Co. of America

Marvel Turf Conditioner
Walter B. Helms, Inc.

Mower Blades
The Budd Mfg. Co.

Mowing Equipment
E. G. Staude Mak-A-Tractor Co.
Toro Mfg. Company
Pennsylvania Lawn Mower Works
Ideal Power Lawn Mower Co.
Worthington Mower Company
International Harvester Co. of America
Roseman Tractor Mower Co.
The F. & N. Lawn Mower Co.
Jacobsen Mfg. Company
National Mower Company

Motor Trucks
International Harvester Co. of America

Mower Sharpeners
Best-Root-Health Company
Toro Manufacturing Company
Henry H. Doty

Nitrophoskas
Synthetic Nitrogen Products Corp.

Peat Moss
Atkins & Durbrow, Inc.

Perforator
J. F. Buel

Pea Annua
J. M. McCullough's Sons Co.

Power Mowers
Cooper Mfg. Company
Toro Manufacturing Company
Worthington Mower Company
International Harvester Co. of America
Jacobsen Mfg. Company
Ideal Power Lawn Mower Company

Putting Green Mowers
Toro Mfg. Company
Pennsylvania Lawn Mower Works
Worthington Mower Company
Ideal Power Lawn Mower Co.
Roseman Tractor Mower Co.
The F. & N. Lawn Mower Co.
Jacobsen Mfg. Company

Power Putting Green Mowers
Jacobsen Mfg. Company
Worthington Mower Company
Ideal Power Lawn Mower Co.

Putters
Pennsylvania Lawn Mower Works

Rhode Island Bent Seed
A. N. Peckham

Rollers (Hand)
John H. Graham & Co., Inc.
Stump & Walter Company

Rollers (Fairway)
John H. Graham & Co., Inc.
Toro Mfg. Company
Worthington Mower Company

Rollers
Stump & Walter Company
Toro Mfg. Company
Worthington Mower Company

Rough Mowers
Toro Manufacturing Company
Pennsylvania Lawn Mower Works
Worthington Mower Company
Ideal Power Lawn Mower Co.
Roseman Tractor Mower Co.
Jacobsen Mfg. Company
International Harvester Co. of America

Seaside Bent
Seaside Bent Company
Lyman Carrier Products

Shower Nozzle
McClain Brothers Company

Signs
Standard Mfg. Company

Spade Disc
John H. Graham & Co., Inc.

Sprayers
Hardie Mfg. Company
Friend Mfg. Company

Sprinklers
L. R. Nelson Mfg. Company
Buckner Mfg. Company
Economy Irrigation Company
Campbell Irrigation Company
Double Rotary Sprinkler Co.
Perfection Sprinkler Co.

Spuds
Diamond-Calk Horseshoe Company

Stolons
O. M. Scott & Sons Co.
Lyman Carrier Products

Synthase of Ammonia
Synthetic Nitrogen Products Corp.

Tee Markers
Standard Mfg. Company
G. B. Lewis Company

Tee Mowers
Toro Manufacturing Company
Pennsylvania Lawn Mower Works
Worthington Mower Co.
Ideal Power Lawn Mower Co.
Jacobsen Mfg. Company

Tee Stands
Worthington Mower Co.
G. B. Lewis Company

Tillage Implements
International Harvester Co. of America

Top Dressing
Hyper-Humus Company
The Ohio Humus Company
Atkins and Durbrow, Inc.

Tractors
E. G. Staude Mak-A-Tractor Co.
Toro Manufacturing Company
Worthington Mower Co.
International Harvester Co. of America
Ideal Power Lawn Mower Co.
Roseman Tractor Mower Co.
R. S. Horner

Tractor Wheels and Spuds
R. S. Horner

Turf Fertilizers
Armour Fertilizer Works

Underground Hose Locker
McClain Brothers Company

Urea
Synthetic Nitrogen Products Corp.

Wood Charcoal
Wood Charcoal Research Bureau

Worm Eradicators
Peter Henderson & Co.
C. B. Dolge Company
Reade Mfg. Company
Fine Crop of Rhode Island Bent

A wonderful crop of the famous Rhode Island Bent is being harvested this fall in the salt-sprayed fields in the extreme southern portion of the little state for which it is named.

A. N. Peckham, whose home is at Kingston, R. I., has been and still is the pioneer in the production of this fine, vigorous seed. In fact he has the only commercial bent fields in the Eastern part of the United States and well deserves the greatest praise from all growers of fine turf for his perseverance in perfecting his strain and placing it within their reach.

True, Nature has helped a lot and the rich virgin soil adjacent to Narragansett Bay seems ideally adapted for this rare and costly grass. Perhaps a little later we can publish a story written by Mr. Peckham on how Rhode Island Bent is grown, harvested and cleaned, ready for the market.

DOMESTIC PEAT HUMUS

Pure organic material, ideal for soil improvement purposes. Complies with U. S. Gov't Specifications—most available in finely theroform—tell us your requirements. Shipment by bag, truck or casket units.

Hyper-Humus Co. of Newton, N. J.

Humus Analysis

An interesting analysis of hardwood humus based upon exhaustive laboratory tests has been sent us by James A. Smith of London, Ohio. Mr. Smith is a notable soil chemist and his investigations are based upon years of experience. Here it is—take it away.

Ten tons fresh manure will make 3600 pounds of humus if properly stored.
Ten tons fresh manure will make 2100 pounds of humus if improperly stored.
Lipman, "Bacteria in Relation to Country Life." Page 309.
Ten tons of fresh manure equals approximately 1.05 tons of humus (2100 pounds). Requires at least one year for ripening. As commonly cared for produces a soft wood humus from straw, the safest and poorest source of humus.
November, 1932, Bulletin U. S. G. A., page 207, says: "We compare fertilizers for turf work chiefly on the basis of the nitrogen content since this is the element which is most costly and of most value for growing turf."
The latest report from laboratory on Windrift Hardwood Humus:

CERTIFICATE OF ANALYSIS

Phosphoric Acid Potash (K2O)

Total 2.42 0.37 0.29
Available 1.47 0.21 0.05

Report on Ripened Manures:

CERTIFICATE OF ANALYSIS

Phosphoric Acid Potash (K2O)

Total (No Report) 2.42 0.37 0.29
Available 1.47 0.21 0.05
Available nitrogen in Windrift hardwood humus exactly three times the amount present in the average ripened manure.

If greenkeepers are compelled to buy fresh manures and care for them until ripened the comparison in values between a ripened manure as humus and Windrift hardwood humus are worth taking into consideration.
O
VERCOME
NATURE'S WHIMS

Rain-Fresh Fairways when you NEED them

The way to win permanent independence from Nature's haphazard watering of your course is to install an economical sprinkling system for complete regulated irrigation. This takes the matter of alluring fairways, that will secure popularity, into your own hands. Now is the time to plan such an improvement.

Buckner Systems are the leaders for low cost, highly efficient course maintenance. More Buckner Sprinklers and valves are in use on American courses than any other make. Without obligating yourself you may have the Buckner Catalog before you on your desk while you plan. Write for it.

Buckner Manufacturing Co., Fresno, Calif

BUCKNER
ONE-MAN SPRINKLER SYSTEMS

Greenkeeper Advertising Pays

SAVE FOR YOUR CLUB BY PURCHASING ACCLIMATED, WINTER-HARDY BENT GRASS SEED

Direct From the Farms Where It Is Grown
A. N. PECKHAM, Kingston, Rhode Island

Also Fairway Mixtures

Steel Center Tractor Spud Keeps Sharp

DIAMOND

DIAMOND CALK HORSESHOE CO.

4100 Grand Avenue

Duluth, Minn.

Write for details

CREEPING BENT TURF WITHSTANDS HEAT WAVE

Countless greens were ruined in the severe heat waves before July 4th, but Illinois Grass Co.'s True Washington Strain Creeping Bent stood this trying period with little or no damage. Used by hundreds of greenkeepers, golf and country clubs, etc. in solid turf form. Furnished in rolls ready to lay down like a carpet. Guaranteed quality. Available in stolons also. Write today for prices and samples.

ILLINOIS GRASS CO., Department 402
18452 REIGEL ROAD, HOMewood, ILLINOIS

J. A. Carter, Sales Agent, 75 E. Wacker Drive Chicago

BROWN PATCH HAS NO CHANCE ON FUNGOL GREENS

Take Advantage of this Double Duty Product—Learn About Big Covering Capacity of FUNGOL

We have some interesting data to send you. Write us today for free literature concerning FUNGOL, the two-in-one Fungicide and Vermicide, for prevention and control of Brown Patch and eradication of grubs, beetles, sod webworms, and earthworms from your Greens.

You can handle the Brown Patch situation quicker and easier with FUNGOL than any other preparation.

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