

B. R. LEACH
suggests

ANTS and WEEDS as Next Greens Research Topics

MANY letters are received by GOLF-DOM in a year's time from greenkeepers and green-chairmen asking for assistance in solving innumerable problems connected with the growth and maintenance of fine turf. Discarding all other factors in connection with this correspondence, the fact remains that these letters are a pretty sound basis upon which to make a statement of the turf troubles besetting the greenkeeping fraternity during any given period.

During the past twelve months the bulk of these letters have asked for information with regard to two subjects, ant control and weed control. Needless to say there isn't much satisfaction in answering letters dealing with these two phases of turf maintenance for the simple reason that there is a dearth of practical information and control measures in each instance.

As a matter of fact, the control of ants and the great bulk of weed growth in fine turf are today the two outstanding, unsolved problems in greenkeeping practice. Ten years ago we had plenty of harassing, unsolved problems in the turf business including brown-patch and grubs of various sorts, to say nothing of the many uncertainties in connection with soil texture and fertility.

Battle with Killers First

It is an axiom of industry that its research brains shall give priority to the most deadly and threatening of the industry's problems, with the less annoying puzzles being sidetracked for the time being.

It is fairly obvious why the Green Section concentrated on brown-patch research and poured a large portion of its funds

into this special project. Brown-patch is a *killer* of fine turf. It simply had to be conquered. There was no object in building and maintaining fine greens with this disease on the rampage, undoing in one night the patient work of months. Research on brown-patch control was consequently pushed vigorously by the Green Section. As a result of several years' expensive and intensive investigation the brown-patch problem was brought under control, thanks to Monteith and his co-workers on the one hand and the manufacturers of organic mercury compounds on the other.

In the same way the Green Section lent its aid to an intensive study of grub control problem in fine turf. Our native white grubs, such as the May beetle and June beetle grub have intermittently taken their toll on the fine turf of American golf courses. The advent of the Japanese beetle increased the white grub problem many, many times. It also gave rise to adequate government funds with which to conduct serious research of white grub control. The problem was ultimately solved by the use of arsenate of lead. Seven years of research were carried out on this grub problem and I estimate that the cost of this research ran somewhere between \$50,000 and \$100,000.

Nowadays we think of brown-patch and grub control as more or less routine jobs. In plain words, they are old stuff. I have no means of knowing how many pounds of mercury compounds were applied to fine turf during 1930, but the total undoubtedly runs high. A dealer told me a few days ago that he sold 200 tons of lead arsenate

in the Philadelphia district in 1930 for use on lawns and golf courses.

Research Money Well Spent

Estimating that the total cost of the brown-patch and grub control research amounted to \$100,000 or \$150,000 it may be fairly said that the money was well spent. If you don't agree with me, quit using mercury compounds or lead arsenate for a year or two and then come to a decision.

Having laid these two primary *killers* of fine turf by the heels, we find that the various turf-research organizations have, during the past several years, more or less gravitated into casual experimentation dealing with comparative tests of various fertilizers and strains of grasses.

Maybe I'm wrong. If so, sue me. But if I'm right, then it won't be amiss to gently hint to the Thomas Edisons and Doctor Einsteins of the turf research racket that the ant problem and the weed problem are still with us and both going strong.

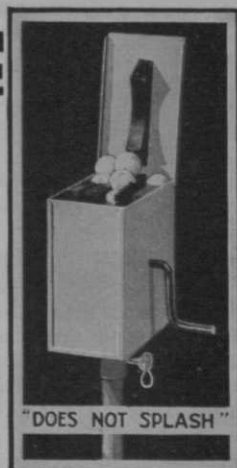
Of course ants and weeds are not what you would call turf *killers*. The green-keeper can live with both of them after a fashion but nevertheless they are both damnably annoying in the day of high pressure demands for de luxe greens and fairways.

I know of no method of actually controlling or cleaning up the ants which infest practically every golf green in the country and undoubtedly the solving of the ant problem presents many difficulties. It can be safely described as a tough nut to crack and naturally the research lads, handicapped by restrictions of time and appropriations, lay off it in favor of some easier job upon which they can base their annual report to the big boss.

Ants of Two Groups

In the first place the various species of ants infesting putting greens are not all alike in their feeding habits. They may be roughly divided into two groups in this respect. One group feeds on animal matter such as worms, grubs and the immature and mature stages of the innumerable insect forms that hang around fine turf. The second group feeds on the honey-dew secreted by aphids.

Possibly it has never occurred to the average greenkeeper that aphids, commonly known as plant lice, are to be found in the fine turf of his greens, but it's a fact nevertheless. If you get down on your



85,000

Balls in one season with this cleaner

THAT'S the 1930 performance of the Six-Ball Cleaner on No. 1 tee at Indian Springs Golf Club and Driving Range, Columbus, Ohio. Not a single repair was necessary, and this speedier, sturdier cleaner will go back in service this year.

The Six-Ball Cleaner thoroughly washes one to six balls at a time and self ejects them. Because it's faster, it prevents delay on the tees. No gears or springs. Nothing to get out of order. No splashing. Needs little care. Golf clubs everywhere call it the "greatest cleaner made."

**SOLD ON
TEN-DAY
TRIAL**

One cleaner on every third tee will equip your course at low cost.

Single Cleaner	\$8.50 Each
2 to 9	\$8.00 Each
10 to 18	\$7.75 Each
Pointed Metal Stakes	\$1.75 Each

THE W. G. MFG. & SALES CO.
33 N. High St. Columbus, Ohio

Or at Your Dealer

tummy with your eyes about six inches from the turf and examine same closely you will find all kinds of small, inconspicuous weeds growing in among the grass blades. If you carefully pick out these weeds and carefully examine them with a magnifying glass you will find aphids aplenty. These aphids secrete the honey-dew upon which the sweet-loving types of ants feed. Consequently there is sufficient honey-dew supply on almost every green to support plenty of this type of ant.

I have spent many an hour reclining on the turf of a green watching the ant population's activities and experimenting and observing its reaction to various sorts of food. Place a little dab of hog lard at one spot on the turf and a little dab of honey or syrup at another spot 3 inches away. Now lay back a little and watch closely. An ant comes along. Within about a quarter of an inch of the lard or honey, as the case may be, he stops dead in his tracks and elevates his feelers. If it doesn't smell good to him, he pulls away and goes on about his business. If the odor of the dab of food intrigues him he drifts closer to it and gingerly samples it. If it hits the spot, the ant stays right there and gorges on the food until he is full to his necktie and collar. Then he backs off and makes tracks for home. No doubt he tells the boys at home all about it, for pretty soon three or four more are on hand filling up on that particular dab of honey, or lard as the case may be and in a very short time there is a steady stream of ants coming to the dab of food and another steady stream heading for home.

In the meantime the same thing is happening in connection with the other dab of food so that in a reasonable length of time you can easily observe that both the lard and the honey are respectively at-

tracting the two types of ants and that both kinds of food are slowly being carried away to the ants' nests.

Ants Are Fussy Feeders

After watching awhile you can spot an ant two feet away and by his appearance tell with pretty fair accuracy whether he will go to the honey or the lard. In other words ants are pretty fussy as to what they will and will not eat, and it is fairly obvious that this partiality as regards food renders ant control that much more difficult. I have heard men say that they cleaned up the ants in a green by feeding them poisoned syrup or poisoned honey, but this statement is open to question. They might possibly have cleaned up the sweet-loving ant species present but not those species preferring animal matter, for the simple reason that the latter will not go near the syrup.

Now if you go a step further in your ant research and place a little dab of honey and lard on the turf, said honey or lard containing a little arsenic or other poison you will note another peculiar reaction on the part of the ant visitors. Right away they become suspicious. They sample the poisoned food but they don't go at it with any enthusiasm, and pretty soon the poisoned honey or lard is virtually deserted as far as the ants are concerned. Anything more than the merest trace of poison in the bait repels the ant population automatically. In other words, ants are no dummies. They know their onions and you can't fool them.

Under the circumstances the mixing up of a batch of poisoned food for ant control is no job for the local groceryman, and I seriously doubt if the mixture concocted by the amateur experimenter ever decimates the ant population to any great extent. At most they have a tendency to re-

Expert Spreading for your course — AT $\frac{1}{6}$ ORDINARY COST!

the master all-purpose

HOFMANN, SR. DISTRIBUTOR

Without this equipment, it takes six men, carefully, cautiously, expertly spreading, to duplicate its work. Greens quickly react to this superlative care. 120-lb. capacity; ruggedly built for long service, yet balanced for swift handling. No stops while adjusting feed; no marks from wheels. Full details and name of nearest dealer upon request — write today.

THE SALEM TOOL CO., Salem, O.

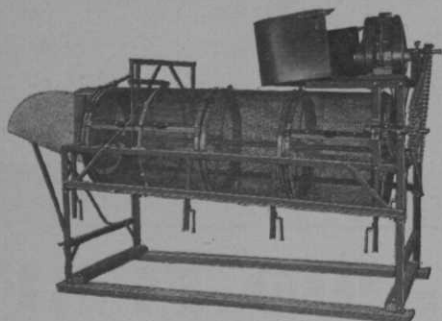


Takes Spreading off the Payroll

We also make a smaller size, called Hofmann, Jr. Distributor.

Tell us any idea for making GOLFDOM advertising more helpful.

COMPOST-**Rotary Screens**-SOIL



"Converse Screens make par greens"

FOR PREPARING SOIL OR SCREENING COMPOST—ONE TO FOUR GRADES AT ONE OPERATION.

DRIVEN BY HAND, TRACTOR OR ENGINE (illustrated).

—BULLETIN ON REQUEST—
ORDER FROM MAKER OR YOUR JOBBER

Manufactured by

F. S. CONVERSE CO., Inc.
BOX B JOHNSON CITY, N. Y.

METROPOLITAN CLUB MANAGERS ASSOCIATION

*

An organization of more than 100 managers of leading metropolitan clubs. Two important functions of club operations are served.

- 1.—the interchange of good ideas of management and improvement.
- 2.—the co-operation with clubs in securing high-type personnel for efficient club management.

Inquiries from Clubs are invited.

*

Metropolitan Club Managers Association

William Norcross, Garden City Country Club, President

J. C. Healy, Siwanoy Country Club, Secretary

duce the ant activity in the immediate vicinity through repellency.

It is very improbable that the ant control problem in fine turf will ever be solved by casual experimentation by either the novice or professional. An experimental project of this nature should provide sufficient funds for three years of research, employing a brainy, aggressive entomologist and a physical chemist who possesses plenty of imagination—and I don't mean the type of imagination induced by gin and orange juice.

Proposes Anti-Ant Team

Hook up these two investigators together for a three-year period with adequate research facilities and \$15,000 per year for salaries and expenses and it is my firm opinion that there would be some action on this problem.

The physical chemist is an essential part of the above research team because the biggest job consists in preparing the poisoned baits so that the presence of the poison in the bait would be entirely camouflaged as far as the ant is concerned.

Here is an opportunity for some enterprising firm with a surplus of cash to work up on ant control, patent same and market it to a waiting public.

As regards weed control, a certain degree of progress and improvement in methods seems to be taking place in connection with fine turf management. The use of iron sulphate as a weed control agent is on the increase of late, due to the efforts of John MacGregor of the Chicago G. C. and other investigators. The chief drawback to the use of this chemical seems to be the necessity for repeated applications in order to obtain an appreciable control.

Arsenate of Lead in Weed Control

In a recent *Newsletter* of the New England Green Section we find the following:

Spraying with arsenate of lead will do a good job on plantain and dandelion. Use four pounds per 1,000 square feet of turf.

On pearlwort three pounds of sulfate per gallon applied with a paint brush gave good results in hot weather.

Arsenate of lead put on dry and washed in killed chickweed and not grass. This is due to the fact that the chickweed leaves being wider, hold the arsenate of lead while the grass doesn't.

Someone told me not long ago that certain greenkeepers in southern New England were obtaining first-class control of

clover in greens by spraying with four pounds of lead arsenate per 1,000 square feet of turf.

All of which indicates that there is a tremendous field for experimental work on the effect of chemical sprays on weed growth in fine turf. The chemical compounds which could be tested in this connection with chance of success are almost unlimited. In the field of industrial by-products alone there are tremendous possibilities.

Arsenate of lead seems to have decided value from the weed-killing standpoint, and yet it is only one of the many arsenates and other compounds of arsenic which should be tested in this respect. Arsenate of lead is much less soluble than certain of the other metallic arsenates, notably the arsenates of calcium, copper, aluminum, zinc, magnesium, etc., to say nothing of the many organic arsenical compounds.

Here again is a potentially lucrative field of research for the industrial concern possessing a good technical staff of chemists, etc., with sufficient surplus funds to finance research of this sort. Weed-killing compounds or mixtures can be patented and trade-marked and as such are a valuable property. The golf course market would receive such preparations with open arms.

COAST GREENKEEPER INVENTS BERMUDA CONDITIONER

Pomona, Calif.—Efficiency Lawn Tool Co., Inc., 453 N. Towne ave., is completing its arrangements for national marketing of the Efficiency Lawn Renovator, a power-operated machine for renovating Bermuda grass areas and similar types of turf. The device is the invention of a Pacific Coast greenkeeper and is meeting with a welcome in that sector. Its users speak highly of the results.

The Efficiency Renovator has power-driven double cutting reels that revolve toward each other in counter revolutions, giving the effect of steel fingers grasping and tearing apart the mat of grass. A Briggs and Stratton four-cycle gasoline motor operates the device. Complete details will be sent to greenkeepers and to interested golf course supply houses.

Cincinnati, O.—Fred Radway, president of I. L. Radwaner Seed Co., New York, and Charles Moore, vice president of J. M. McCullough's Sons, have completed arrangements whereby Radwaner become eastern distributors of McCulloughs' Seaside and Prince Edward Island bent seeds.

COCOOS BENT SEED

Grow Beautiful Greens

like famous Golf Clubs
in California

Write Today
for booklet
and prices.

LECCO

A complete
grass food
also produced
by Lyman
Carrier.

This spring plant Cocoos Creeping Bent, the same seed used by nationally famous California Clubs. Cocoos is the rare strain of *Agrostis Maritima* produced only by Lyman Carrier. It stands erect, keeps its vivid green color, resists disease and withstands adverse weather at seashore or on inland courses. Supply is limited. Order early.

LYMAN CARRIER

Granger, Ind.



Save 75% of Your Cost

For Brown Patch Control

CALO-CLOR

will do this for you. . . A fact worth remembering when figuring your 1931 budget.

Full Information
on Request

MALLINCKRODT CHEMICAL WORKS

2nd & Mallinckrodt Streets,
St. Louis, Missouri