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DECEMBER, 1928

# Test Plots and Testing Procedure Outlined 

SOIL and climatic conditions exert such important influences on plant growth that recommendations based on tests in one locality may need modification under somewhat different local conditions. This has been found to be true in growing most plants, and as a result we have the numerous State agricultural experiment stations and the many branch stations throughout the agricultural districts. The United States Department of Agriculture in cooperation with the United States Golf Assocfation Green Section plans to extend the experimental work to provide small experimental plots in several golf course centers. It is the purpose of these experimental plots to reproduce under varfous local conditions some of the most promising experimental work of the turf garden at the Arlington Experiment Farm (near Washfngton, D. C.).

## Size

Plots as planned are 10 by 10 feet, requiring an area for the complete set of 50 by 100 feet. This gives a convenient fraction of the standard ( 1,000 square feet) unit of measurement on golf courses. The size can be varied by the fndividual club, but it is hoped the plots will be kept as nearly uniform in size as possible in order to simplify the work of determining rates for seeding, fertilizing, and other treatments. We recognize several objections to small plots, but the advantages of lower

[^0]costs, more uniform soll conditions, more direct comparisons and many others seem to justity fully the use of the small plot series.

## Arrangement

The plots will be numbered and lettered as shown in the accompanying diagram. This provides a convenient means for referring to the individual plots. Thus the bone-meal plot is 6-E and the Ammo-Phos plot is 5-D. The putting-green plots are all at one end and the fairway plots at the other. The series are placed together in a way which it is believed will be most simple for cutting, watering, top-dressing, etc., and at the same time enable one to make direct comparisons in as many places as can be arranged.

## Optional Plots

Five plots are left blank in the diagram. These are left open for use by the club on whose course the series is planted. It is hoped that each club will fill these, or additional plots, if desired, with tests of their own planning. It is suggested that they be used to try local strains or special mixtures of grass, some special fertilizer or special treatment, or any other problem in turf maintenance that the individual greenkeeper or green committee may undertake.

## Grasses

Ten plots (rows 2 and 3) are devoted to trials of different putting-green grasses. and five plots (row 9) are of representative fairway mixtures. These are to be

PLAN FOR EXPERIMENTAL PLOTS

| (A) | (B) | (C) | (D) | (E) |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 " X " | "X" | " X " | "X" | "X" | Optional. |
| $2\left(\begin{array}{l}\text { Va. Bent } \\ \text { Coi. Bent } \\ \text { (Stolons) }\end{array}\right.$ | Wash. Bent Met. Bent (Stolons) | Seaside Bent 2 strains (Seeded) | Rhode 1sland Bent (Seeded) | Poa Annua (Seeded) | Trial plots of putting <br> green grasses. |
| $3\left\{\begin{array}{l} \text { European } \\ \text { Red Fescue } \\ \text { (Seeded) } \end{array}\right.$ | Chewing's <br> N. A. Fescue (Seeded) | Poa Trivialls (Seeded) | So. German Bent (Seeded) | Highland Val. Bent (Stolons) |  |
| $4\left[\begin{array}{l} \text { Activated } \\ \text { sludge } \end{array}\right.$ | Poultry manure | Check | Ammoniam sulphate | $\begin{aligned} & \text { Mushroom } \\ & \text { soll } \end{aligned}$ |  |
| $5 \text { [Check }$ | $\begin{aligned} & \text { Mixed } \\ & \text { fertilizer } \end{aligned}$ | Urea | $\begin{gathered} \text { Ammo- } \\ \text { Inos }^{\prime} \end{gathered}$ | Check |  |
| ${ }^{6}\left\{\begin{array}{l} \text { Castor } \\ \text { Bean } \\ \text { Pomace } \end{array}\right.$ | Cottonseed meal | Check | Lime | Bone meal |  |
| ${ }^{7}\left[\begin{array}{l} \text { So. German } \\ \text { Bent } \\ \text { Lead } \\ \text { Arsenate } \end{array}\right.$ | South Ger. Bent | So. German Bent | Metro. Bent Stolene | Chewing's <br> New Zealand <br> Fescue | Putting green length.* |
| $8\left\{\begin{array}{l} \text { Ky. Blue } \\ \text { Red Top } \\ \text { Lead } \\ \text { Arsenate } \end{array}\right.$ | Ky. Blue Red Top | Ky. Blue Red Top So. German Bent | Ky. Blue Red Top | Chewing's <br> N. Z. Fescue <br> So. German <br> Bent | Eairway length.* |
| $9\left\{\begin{array}{l} \text { Ky. Blue } \\ \text { Red Top } \\ \text { N, Z, Fes } \end{array}\right.$ | $\begin{aligned} & \text { Ky. Blue } \\ & \text { Red Top } \end{aligned}$ | Ky. Blue Red Top So. German Bent | Ky. Blue Red Top Pos Triv. | N. Z. Fescue So. German Bent | $\int \begin{aligned} & \text { Trial plots of } \\ & \text { fairway grasses. } \end{aligned}$ |
| $10\left[\begin{array}{l} \text { Bone } \\ \text { Meal } \end{array}\right.$ | $\begin{aligned} & \text { Mushroom } \\ & \text { soil } \end{aligned}$ | Check | Ammonlum sulphate | Activated sludge | Fertilizerexperimentson fairwaygrasses.Kentucky bluegrass and redtop mixture. |
| 11 [ Check | Manure | Cottonseed meal | Cottonseed meal plus ammontum sulphate | Cheek |  |

Note: Soil in plots 7A and 8A poisoned with lead arsenate before seeding.
*Cutting experiments.
treated as nearly as possible like similar plantings in play on the course and will help to determine the most desirable grass or mixture for courses in the immediate vicinity.

## Fertilizers

Fifteen plots (rows, 4, 5 and 6) are devoted to trials of fertilizers for putting greens, and 10 for fairway fertilizers. These will recelve no other fertflizer than that prescribed and will not receive any compost, for compost itself contains fertilizers. The seed selected for the puttinggreen serfes is South German mixed bent: Since this mixture includes a variety of bents, it is representative of both seeded and stolon-planted bent greens from the standpofint of food requifements. For the fairway fertilizer tests the common mixture of bluegrass and red top was selected as most representative of fairway mixtures int the northern half of the country. The fertilizers in all cases will be applied at regular intervals. The rate of application
will be determined by the Green Section, based on actual chemical analyses made by the Department of Agriculture chemists. They will be applfed at such rates that all plots (with the exception of the lime plot) will receive equal quantities of nitrogen. The arrangement is such that each fertilizer plot is adjacent to a check plot that will receive no fertilizers whatever.

## Lead Arsenate

The effect of lead arsenate in controlling grubs, worms and weeds will be tested on both putting green and fairway turf (plots 7-A, 7-B, 8-A and 8-B).

## Cutting Experiments

The effect of cutting putting-green and fairway turf with mowers set at different heights will be tested in plots 7-C, 7-D, 7-E, 8-D and 8-E. Two mowers will be used for each of these series, one set "low" and the other "high" for their respective series. Three different representative grasses are used for the putting-green


Olympia Field's Experimental Plot at Time of Installation
series and three common fairway mixtures for the fairway series.

## Watering

Rows 2 to 8, inclusive, are to be watered regularly as needed. Rows 9 to 11 are to recelve only natural watering. This wfll make the tests more representative of most golf course conditions, An interesting comparison of the effect of watering fairways will be provided in plots $8 \cdot \mathrm{~B}$ and $9-\mathrm{B}$. These two plots are to be planted with the same mixture of seed, and it will provide an opportunity to compare the effect of artiffcial watering on the permanence of this fairway mixture and the relation of watering to weed competition.

## Tests Under Playing Conditions

It is hoped that wherever these test plots are planted the club will find it convenient to supplement them with a few tests under actual playing conditions. It is suggested, for instance, that half a green receive the ammonium sulphate with compost treatment and that the other half be given the equivalent amount of nitrogen in the form of some complete fertilizer. This should not change the appearance of the green but would afford an opportunity to observe the response to actuat playtng condttons. Likewise any other test in the plots could be checked under playing conditions, depending on the choice and interest of the greenkeeper or club officfats.

## Mowing

Rows 1 to 6 , inclusive, and plots 7 -A, $7-\mathrm{B}, 8-\mathrm{A}$ and 8 -B shall be mowed as are the greens on the course. Rows 9 to 11, inclusive, shall be mowed as are the fairways on the course. Plots 7-C, 7-D and 7-E shall
each be divided into two parts and cut at two lengths, one short for putting greens, the other long for putting greens. Plots 8-C, 8-D and 8-E shall each be divided into two parts and cut at two lengths, one short for fairways, the other long for fafrways.

## Top Dressing

Rows 1 to 3 , inclusive, and row 7 only to be given regular green top-dressing; that is, monthly top-dressings with compost and sulphate of ammonia. Rate to be prescribed by the United States Golf Association Green Section.

## Fertilizers

Rows 4 to 6, Inclusive, and rows 10 to 12, inclusive, to receive fertilizer as indicated in dlagram, at rates established by the United States Golf Association Green Section and under the supervision of one of their representatives wherever feasible, No compost or other top-dressing materlal to be used on these plots.

## Lead Arsenate Treatment

To be applied on plots 7-A and 8-A before seed is planted and under the supervision of a representative of the Green Section.

## Brown Patch Control Treatment

To be superimposed on rows 1 to 6 , inclusive, if necessary. Treatment to be prescribed by the United States Golf Assoclation Green Section and applied under the supervision of a representative of the Green Section.

## Watering

Rows 1 to 8, inclusive, to be watered regularly as needed. Rows 9 to 11, inclusive, not to be artificially watered.

## Three California Clubhouses

Almost hidden from view by surrounding shrubbery and flowers, is the clubhouse of Mount Diablo, near Frisco.


The clubhouse of the Montercy Peninsula Club seems dwarfed beneath the stately trees that hem it in and shade it.


# Green-Chairman's Path to a Padded Cell 

By B. R. LEACH

"It isn't the hunting that hurts the horses" hooves.
It's the hammer, hammer, hammer on the hard highway."
-Socrates, or some other sage.

LIFE isn't all beer and bowling nowadays. It seems almost impossible to bury one's checkered past in a deep. deep grave. Witness, for instance, the following letter, which recently popped up in my morning's mail:

Philadelphia, Pa., November 16, 1928.
Mr. B. R. Leach,
World's Leading Third Rate Turf Authority,
Riverton, N.J.
Greetings, old top; greetings:
No doubt you remember me. I'm the guy tho occupied the padded cell next to yours in the Philadelphia Insane Asylum in 1926. Don't you remember? I was Julius Caesar, trying to grow grass on my bald head, and you were Napoleon Bonaparte, fighting grubs on the St. Helena Golf Course. Those were the happy days-and gone forever.

Well, they let me out of the bughouse carly in 1927 and I have, I believe, been entirely rational since gaining my freedom. $I$ was certainly surprised, however, to find that you had been released without a keeper. You certainly had it bad. Furthermore, since reading your "close-up" on the greenkeeper in November GOLFDOM I am more than ever convinced that your cranium is still cracked and that they let you out too soon.
$I$ understand that you went off your trolley trying to live on a turf expert's salary. which effort is enough, Lord knows, to break even a strong man, but I don't suppose it woutd ever occur to you in a thotisand years as to the reason why $I$ went "non decompos mentis." Well, it's a long story. Meet me in Philadelphia at noon on the 18th. We'll have luncheon together and I'll tell you all about it.

Affectionately yours,
Homer Johnson.

Good old Homer. A scholar, a gentleman and an ornament to society. What happy memories were revived by his letter. That wonderful grub in the hoosegow for the feeble minded. No work. Nothing to worry about. Happy daze.

Well, I met Homer on the 18 th. We had a wonderful luncheon at Woolworth's. I recall that the lemon meringue pie was especially delicious. Homer was looking exceedingly fit.

After luncheon we walked uptown to the Ritz Carleton, strolled into the lobby and ensconced ourselves in a couple of $\$ 300$ chairs. Then Homer had one of the flunkies bring us a couple of $\$ 100$ diamond studded ash trays and we proceeded to light up a couple of Pittsburgh stogies and relax. Did they throw us out? Why, certainly not. They thought we were a couple of eccentric millionaires. It was in the midst of these mellow surroundings that Homer recited the dramatic history of his troubles.

## Chairman's Garland of Poison-Ivy

"According to your article in last month's GOLFDOM," said Homer, "you seem to be laboring under the impression that the greenkeeper gets a dirty deal. Well, I suppose he does have his troubles, but believe me when I say that he has a sweet dream of peace compared with the trials and tribulations of the green-committee chairman. Now don't argue with me about what I know, I've been all through it. I was chairman of the green-committee during 1925 at the Wykymaguk Country Club. You know that club? Very nice crowd. Ananias paid us a visit once. You recall Ananias? He was the fellow that spent his life walking around with a lantern looking for an honest man. Well, while he was visiting our club someone stole his lantern.
"Angus McDougle was our greenkeeper. A good old hard-boiled Scotch egg. Understand, I have nothing against the Scotch. Some of my closest friends are Scotch, but that old bozo certainly did drag me through a knot-hole in 1925. He had a single track
mind. All he thought about was his 18 greens. He always had his nose buried in creepfing bent. You couldn't reason with him; a skeptical sort of guy, one of these fellows who look for the wishbone in a soft-boiled egg.
Shortly after my election to the greencommittee chairmanship. Angus met up with me one day on the ninth tee and inquired as to the state of my health, which I assured him was all that it should be. Angus casually passed the remark that I had all the appearance of having a strong constitution, a sanguinary disposition and an adequate capacity for taking punishment, and that he hoped I had all these perquisites but that one could never definitely tell by appearances. Ah, woe. If I had only reatized the signiffcance of McDougle's remarks. He had seen them come, stay a while, and go.

Angus then raised the question as to how much money we were gofng to have to spend on the course during the year, to which I replied that the Board had appropriated $\$ 25,000$. It seems, however, that Angus dfun't give a whoop in a rain barrel as to how much they had appropriated. What he wanted to know was how much we were actually going to have available to spend on the course. This seemed like a damphool question to me and 1 am afraid I was rather short with Angus, but all I got out of him was a deep-seated grunt and a list of supplles a mite long which he claimed he needed right away. This list fncluded 10 cars of mushroom sofl, 5 cars of sand, 4 tons of lead arsenate, $2,000 \mathrm{gal}$ lons of gasoline, 4 barrels of motor oil, 2 gangs of fairway mowers, hand mowers, tools, etc., enough, so it seemed to me, to stock the A. E. F.

I had always heard that these greenkeepers were an impossible lot and I strafghtway decided that now was the opportune time to tell Mr. McDougle where to get off. What, I reasoned, is the use of being elected chairman if one cannot exercise a modfcum of authority? i consequently ordered him to order only 1 car of musbroom soil, 50 gallons of gasoline, 2 barrels of motor oil, repair the old fairway mower, and omit the sand and lead arsenate entirely. Whereupon Angus went on his way, leaving me in an irritated frame of mind and spoiling my game entirely.

## Shooting the Roll

The next day old Jack Van ten eyck, the president of the club, got me in a
corner and imparted the news that the Board had decided to build a new asphalt parking place and to rebulld the road leading into the clubhouse. He said the job would only cost $\$ 3,000$ and It needed to be done mighty bad. I didn't raise any objection. He also casually stated that the $\$ 3,000$ for the job would naturally come out of the $\$ 25,000$ budget for course upkeep. 1 didn't raise any objection. It wasn't my money.

When Angus heard the news he literally pawed the air. Sweet spirits of nitre! How he did carry on. "Those pirates," said Angus, "are up to their old game again. There goes the money for my mushroom soll and the sand. They'll have us stripped to our naked hides before the season is over. My poor, poor greens. They're going to be starved again."

Why didn't I go and blister old man Van ten eyck? Be yourself, boy; be yourself. The old man buys lots of bonds and I'm a bond salesman. Would a rabbit spit In a bulldog's face?

Well, things went along for a while and then Van ten ecyk's better half went on another of her intellectual rampages and stuck another knife in poor old Angus and me. It seems she attended a meeting of the local garden club on Wednesday morning and some long haired son of a sea cook gave a lecture on shade trees and what should be done to 'em to keep 'em in health and happiness. The next day Angus saw her poking the shade trees near the clubhouse with a carving knife. Angus is very very brave in his life-long fight with Scotch whisky but he has no use for knives, so he beat it.

In the meantime Mrs. Van is telling her bed and board what to do and where to do it. Doesn't it beat hell how some men walk a chalkline? Can you ever visualize pither of us allowing our wives to tell us anything? You and I are strong men, not weaklings. At any rate, in a few days old Van gets me in a corner again and imparts the sad information that our magnificent shade trees surrounding the clubhouse are in immfnent danger of collapsing unless their insides are filled with cement and what not, and that the Board had decided to have said trees repaired by a corps of tree experts. That the job would cost $\$ 2,400$, and of course it would be paid cut of the course-maintenance funds. All I said was, "Yes, sir; thank you, sir." How did Van twist the Board around his little finger? Say, how does it always happen that a milltonaire always gets hils own way


[^0]:    Bulletin from United States Department of Agriculture, Bureau of Plant Industry, Olice of Forage Crops.

