Reg. U. S. Pat. Off.
Golfdom
THE BUSINESS JOURNAL OF GOLF
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 Association 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 various local conditions some of the most promising experimental work of the turf garden at the Arlington Experiment Farm (near Washington, 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 individual 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 costs, more uniform soil conditions, more direct comparisons and many others seem to justify fully the use of the small plot series.

Bulletin from United States Department of Agriculture, Bureau of Plant Industry, Office of Forage Crops.

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	Va. Bent Col. Bent (Stolons)	Wash. Bent Met. Bent (Stolons)	Seaside Bent 2 strains (Seeded)	Rhode Island Bent (Seeded)	Poa Annua (Seeded)	Trial plots of putting green grasses.
3	European Red Fescue (Seeded)	Chewing's N. A. Fescue (Seeded)	Poa Trivialis (Seeded)	So. German Bent (Seeded)	Highland Val. Bent (Stolons)	
4	Activated sludge	Poultry manure	Check	Ammonium sulphate	Mushroom soil	Fertilizer experiments on putting green grass seeded S. German Mixed Bent.
5	Check	Mixed fertilizer	Urea	Ammo-Phos	Check	
6	Castor Bean Pomace	Cottonseed meal	Check	Lime	Bone meal	
7	So. German Bent Lead Arsenate	South Ger. Bent	So. German Bent	Metro. Bent Stolons	Chewing's New Zealand Fescue	Putting green length.*
8	Ky. Blue Red Top Lead Arsenate	Ky. Blue Red Top	Ky. Blue Red Top So. German Bent	Ky. Blue Red Top	Chewing's N. Z. Fescue So. German Bent	Fairway length.*
9	Ky. Blue Red Top N. Z. Fes.	Ky. Blue Red Top	Ky. Blue Red Top So. German Bent	Ky. Blue Red Top Poa Triv.	N. Z. Fescue So. German Bent	Trial plots of fairway grasses.
10	Bone Meal	Mushroom soil	Check	Ammonium sulphate	Activated sludge	Fertilizer experiments on fairway grasses. Kentucky blue grass and red top mixture.
11	Check	Manure	Cottonseed meal	Cottonseed meal plus ammonium sulphate	Check	

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

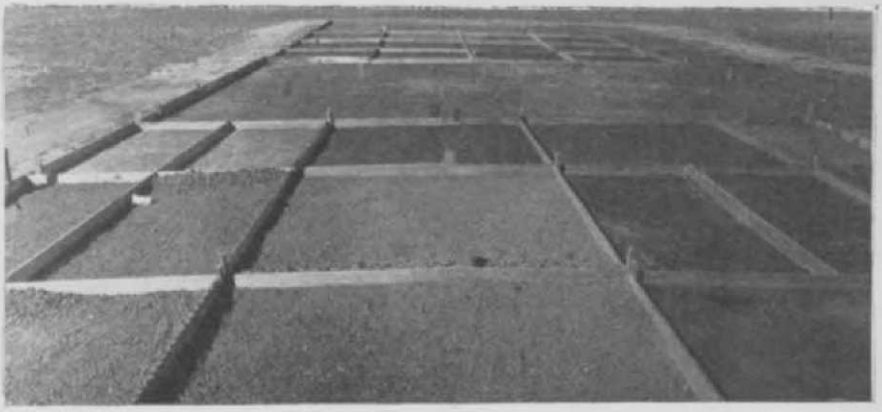
Fifteen plots (rows, 4, 5 and 6) are devoted to trials of fertilizers for putting greens, and 10 for fairway fertilizers. These will receive no other fertilizer than that prescribed and will not receive any compost, for compost itself contains fertilizers. The seed selected for the putting-green series 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 standpoint of food requirements. For the fairway fertilizer tests the common mixture of bluegrass and red top was selected as most representative of fairway mixtures in 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 applied 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 receive only natural watering. This will 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-B and 9-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 artificial 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 actual playing conditions. Likewise any other test in the plots could be checked under playing conditions, depending on the choice and interest of the greenkeeper or club officials.

Mowing

Rows 1 to 6, inclusive, and plots 7-A, 7-B, 8-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 fairways.

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 diagram, 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 material 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 Association 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.