

"TURF MANAGEMENT" BOOK NOW AVAILABLE

A handbook on development and upkeep of turf for golf courses, parks, sports fields and large lawn areas, entitled "Turf Management," by H. Burton Musser, was to be published November 10 by McGraw-Hill.

The book was prepared under the sponsorship of the United States Golf Association. It embodies the fruits of experimental work by the USGA Green Section since its formation nearly 30 years ago and by other turf research agencies.

The book is designed to be a standard guide and reference volume. It treats of turf management in all its phases, including propagation of turf grasses, maintenance of turf, fertilizers, drainage

and irrigation, weed control, insect control, disease control, and agricultural tools.

There are also data on practical engineering and landscape architecture, golf course site selection, preparation of layout plans, and the essentials of design and construction of tees, fairways and putting greens.

"Turf Management" contains 63 illustrations. The price is \$6. The book is available at all bookstores.

The author, H. Burton Musser, is Professor of Agronomy in the School of Agriculture at Pennsylvania State College. He was assisted in preparation of "Turf Management" by experts from all over the country.

GLEANINGS FROM WIDESPREAD TURF FIELD DAYS**CALIFORNIA (Graul)**

The Green Section's U-3 strain of Bermudagrass, tested since 1938 in the Washington, D. C., area, has found high favor in California wherever Bermuda is grown. It stays green longer than any other strain, and it is fine-bladed and vigorous.

The Green Section's finest selections of creeping bentgrasses for greens are finding favor also. Arlington (C-1) and Congressional (C-19) are tops in performance and bid fair to replace Seaside, which gets ugly purple splotches in cool weather.

Various porous minerals found in California's rich abundance look good as soil amendments. Expanded mica is promising as a peat substitute.

Proper use of water alone can result in vast turf improvement.

Merion bluegrass is outstanding under close (under one-inch) mowing.

Zoysia appears to have definite promise.

OREGON (Graul)

The fescues (Alta, Chewings, Creeping Red and Meadow) and the bents (Seaside, Highland Colonial and Astoria Colonial) in proper mixture produce ideal lawn and fairway turf under nearly every condition. Carloads of the common pasture Kentucky bluegrass have failed completely to produce a turf in most cases observed, yet it is added to most seed mixtures.

Good Mixture

This was one of the outstanding lawn and fairway seed mixtures in the Penn State Trials. Merion bluegrass 40%, Penn State Chewings fescue 50%, and Colonial bent 10%. Please note: No Nurse Grass!

Overwatering and underfeeding characterized most sick turf.

Sodium arsenite successfully whipped *Poa annua*, weeds and insects on the excellent bent greens at one 9-hole course (small amounts, often!).

MONTANA (Graul)

Common bluegrass produces "good"

fairways when cut 1½ inches high and fed heavily.

Bent putting greens are easy to keep in direct relation to the sand content of the soil—which means drainage and aeration.

Water control is just as important in arid climates as in humid.

TENNESSEE (Grau)

Bermuda greens respond to heavy feeding, close daily mowing, frequent deep aeration, infrequent watering, top-dressing.

Combination turf (cool- and warm-season grasses blended) offers great possibilities for the Mid-South. Some creeping bentgrasses have survived for years in Memphis in full sun.

Dallisgrass is one of the worst pests which (as yet) is unconquered in turf.

KENTUCKY (Grau-Wilson)

The zoysia grasses provide ideal golf turf, particularly for fairways. Bermudagrass is the tougher one on tees.

The stiff heavy clay soils demand adequate sub-drainage and internal drainage for putting green construction.

The fertilizer isn't made that can compensate for poor drainage, poor aeration, compact, soggy soil, shallow roots, and weak, inferior grasses.

NEW JERSEY (Ferguson-Wilson)

The Arlington (C-1), Congressional (C-19), and Collins' (C-27) combination is among the best for putting greens.

Merion bluegrass is an outstanding piece of turf.

Combinations of U-3 Bermuda and cool-season grasses looked good. At the time of the Field Day, the U-3 had the upper hand.

Aerification studies have provided negative results under the favorable conditions that have existed this year. Many observers share the opinion that the results will be different under unfavorable growing conditions.

The high spot of the day was Charles Hallowell's report of his visit to California. He presented an excellent resume of turf conditions and problems in that area. We can all learn something by

studying problems and practices in the various parts of the country.

PHILADELPHIA

(Ferguson-Wilson-Radko)

Disease control studies show that 531 is still one of the best materials for dollarspot control. The cadmium and mercury combinations show great promise.

Numerous crabgrass control studies were exhibited. Results of chemical applications appeared to be variable. Rates of application, dilutions, timing, and weather conditions are all factors in the effectiveness of control. It appears to be the consensus that a given set of results is hard to duplicate. While some of the materials have been effective under certain conditions, the uncertainties involved indicate that they should be used with caution.

Generally, phenyl mercuric acetate materials appear to be better when crabgrass seedlings are small, whereas potassium cyanate appears to do a better job later in the season.

Practical experimentation with Merion bluegrass, Z-52 zoysia, and U-3 Bermudagrass indicates that these grasses are all useful in the Philadelphia area.

GEORGIA (Grau)

Tifton 57 Bermuda is outstanding in disease resistance, vigor and aggressiveness, and ability to snap back in the spring. Spring transition still is the biggest putting green problem.

Sawdust is recommended as one of the better and cheaper sources of organic matter for topdressing, composted with raw sewage sludge, sandy soil and Cyanamid (15 pounds to each cubic yard).

Carpetgrass thrives best in the acid range. Most other southern grasses do best in soils at pH 6.5.

Mixtures of bent, fescue, and bluegrass are being favored for winter putting greens. Ryegrass is often lost from disease if weather turns warm.

Spring transition is less of a problem when soil is aerated thoroughly.

Two-inch plugs are favored as the best method of introducing a new creep-

Aeration



There was intense interest in soil aeration demonstrations at Cincinnati. Left to right: Nite Crawler, G-L Aerifier, Terferator

ing grass into established turf without interfering with play.

PENNSYLVANIA (Grau-Radko)

Merion bluegrass *breeders seed* is being produced in Pennsylvania under Prof. H. B. Musser's supervision.

Ureaform fertilizer produces the most uniform level growth curve on turf.

Crabgrass control has been excellent at low cost by spraying one pound of sodium arsenite to the acre with a wetting agent.

Water management is receiving more attention all the time. A great deal of turf has died because it was *watered to death!*

Experiments involving common Kentucky bluegrass have been abandoned because leafspot killed most of the grass and no readings could be taken. Future experiments on bluegrass turf will be made on Merion bluegrass.

Old Orchard bent (C-52) becomes heavily matted spring and fall and stolons have a tendency to run on top.

Z-52 zoysia and U-3 Bermuda are showing promise in combination with cool-season grasses under fairway cut.

NEW YORK (Wilson)

Maleic hydrazide appears to *encourage* crabgrass under some conditions.

Potassium cyanate at eight pounds to the acre in 100 gallons of water with wetting agent was one of the most satisfactory materials for crabgrass control. Three applications have best results.

PMA materials are most effective in early-season treatments when crabgrass

plants are in seedling stage.

Potassium cyanate consistently gave better results as crabgrass approached maturity.

Sodium arsenite is one of the better crabgrass control materials but in most cases it has been used at higher rates than necessary, which frequently has damaged turf grasses.

The only permanent crabgrass control is a good turf of grasses that can whip crabgrass on its own terms.

RHODE ISLAND (Wilson)

Plots of Arlington (C-1) and Congressional (C-19) creeping bents in combination are outstanding. Arlington (C-1) turf untreated for disease since 1940 is still near-perfect turf with no mat formation or spongy root accumulations.

Velvet bents present most pleasing surfaces but provide serious problem of spongy root accumulation, not yet solved.

Merion bluegrass is superior to common Kentucky bluegrass.

Z-52 zoysia gives promise of becoming a valuable addition to New England turf, especially where summer heat and crabgrass are troublesome in unwatered lawn and fairway turf.

PMA studies are revealing more uses for the material.

Chlordane is the nation-wide favorite for rapid economical insect control on turf. Wettable powders should stay in suspension. If they settle out quickly they are not good formulations.

Chemically-treated grass seeds (Phygon, Arasan, Spergon) seem to offer no advantage over untreated seeds.