



Turfgrass research review

By Dr. James B. Beard

Response of bentgrass turf to dicamba, mecoprop, and silvex herbicides.

R.E. Engel. 1966 Report on Turfgrass Research at Rutgers University. New Jersey Ag. Exp. Sta. Bull. 816:85-92. 1966 (Department of Soils and Crops, Rutgers, the State University, New Brunswick, New Jersey).

The relative selectivity of three herbicides were compared when used on a bentgrass fairway turf cut at 3/4 inch. The turf was composed of a mixture of seaside creeping bentgrass and colonial bentgrass. The three herbicides, (a) silvex (2-[2, 4, 5-trichlorophenoxy] propionic acid), (b) mecoprop (2-[2-methoxy-4-chlorophenoxy] propionic acid), and (c) dicamba (2-methoxy-3, 6-dichlorobenzoic acid) were applied at rates of 1, 1.5 and 0.5 lbs. per acre.

Three dates of application were compared: Sept. 15, 1964, Oct. 26, 1964, and May 6, 1965. The relative bentgrass selectivity was evaluated in terms of the effect on turfgrass color and growth which was measured by clipping yields.

All three herbicides may cause mild yellowing of bentgrass for a short duration after application. The spring application of dicamba caused more noticeable midsummer discoloration. Silvex caused a reduction in bentgrass growth of over 50 per cent for several weeks following the September and May applications.

In contrast, mecoprop and dicamba gave no significant reductions in bentgrass growth. These results indicate that mecoprop or dicamba would be the preferred herbicides for use where selectiv-

ity to bentgrass is of concern. *Comments*—Turfmen considering the use of dicamba should be cognizant that a number of ornamental shrubs and trees are quite sensitive to this herbicide. Serious injury or even kill of shrubs and trees has been observed during the past year when dicamba has been applied too close to certain ornamental plantings.

1966 Turfgrass survey

D.O. Boster. Pennsylvania Department of Agriculture, Crop Reporting Service, CRS-42. pp. 1-36. (2301 North Cameron Street, Harrisburg, Pennsylvania).

The report encompasses a detailed study and survey of the turfgrass industry in Pennsylvania. It was found that over 157 million dollars is expended each year in maintaining turfs in Pennsylvania. The replacement value of the turfgrass equipment in the state is approximately 334 million dollars. In 1966, the maintenance expenditure for golf course turf totalled \$18,464,752.

The maintenance expenditure was subdivided into five major categories: 56 per cent for labor, 9 per cent for fertilizer, 8.5 per cent for irrigation, 5 per cent for new equipment and 5 per cent for repair and maintenance of equipment. The turfgrass maintenance expenditure averaged \$50,152 per 18-hole course and \$17,252 per nine-hole course. The average equipment investment current inventory for 18-hole courses was \$32,578 and for nine-hole courses it was \$11,381.

The 18-hole golf courses average 4.1 full time turfgrass maintenance

employees per year and 5.3 part time employees. The average acreage for 18-hole golf courses was 107 acres while it was 44 acres for nine-hole courses. This average was composed of 2.4 acres of greens, 1.2 acres of trees, 59 acres of fairways and 35 acres of roughs per 18-hole golf course.

The grass species composition of fairways averaged as follows: (a) bluegrass-red fescue—26 per cent, (b) bluegrass—22 per cent, (c) bluegrass-red fescue-bentgrass—15 per cent, (d) bluegrass-bentgrass—13 per cent, and (e) bentgrass—10 per cent. Note that the bluegrass component included annual bluegrass. The 474 courses averaged 12.6 golf cars per golf course. There was an average of 22,540 rounds of golf played annually per 18-hole course and 13,255 per nine-hole course.

Comments—Keep in mind that these data are just averages. One should use these data with care in order to avoid improper interpretation.

Salinity tolerance of seven varieties of creeping bentgrass, *Agrostis palustris* Huds.

V.B. Youngner, O.R. Lunt, and F. Nudge. *Agronomy Journal* 59(4): 335-336. 1967. (Department of Agronomy, University of California at Riverside, Riverside, California, 92502).

The relative salinity tolerance of seven creeping bentgrass varieties was compared using solution culture techniques. Visible effects of salinity on bentgrasses included a stunting of leaf growth, a dark-green color, and rolling of the leaves. Top growth of all varieties

Continued on page 30



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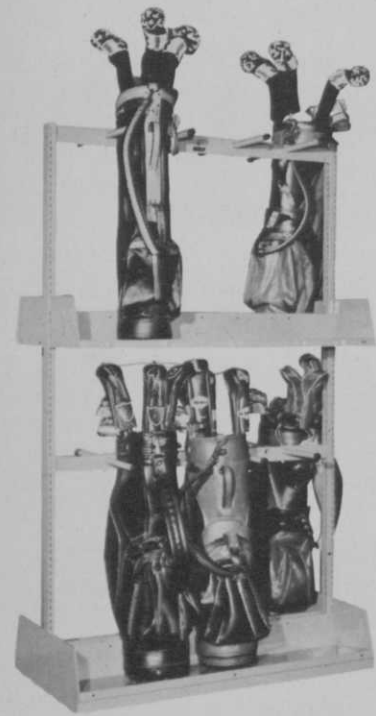
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Beard *Continued from page 28*

increased with increased salinity. When salinity tolerance was measured in terms of the relative yield of clippings, Seaside, Arlington, Pennlu and Old Orchard were the most salt tolerant, Congressional and Cohansey were intermediate, and Penncross, the least. Varieties having a high yielding ability under nonsaline conditions also gave the highest yields under high salinity.

When the salinity was increased to a lethal level, Seaside definitely exhibited superior tolerance to high salinity and also had more rapid and complete recovery when placed in a non-saline growth medium. Cohansey proved to be moderately tolerant to extreme salinity and also had good recovery. Congressional had the lowest survival rating at high salt levels and also had the poorest recovery capability.

The other four bentgrasses were intermediate in tolerance to extremes in salinity and ability to recover from the salt stress. Considerable variability in salt tolerance was observed among individual plants of Seaside. This would suggest that a bentgrass variety can be developed which has a salinity tolerance that is substantially greater than Seaside.

Comparison of nitrogen sources for 'Tif-green' bermudagrass under putting green conditions.

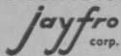
G.C. Horn. Florida Turf-Grass Association Bulletin 14(1):1-5. 1967. (Department of Ornamental Horticulture, University of Florida, Gainesville, Florida, 32603).

Twelve nitrogen fertilization programs were compared on Tifgreen bermudagrass maintained under putting green conditions. The treatments included various rates of ammonium nitrate, encapsulated ammonium sulfate, sewerage sludge, ureaformaldehyde, and selected blends of these nitrogen carriers. The soil type of the experimental area was a loamy fine sand. Thus, water soluble nitrogen forms would be subject to considerable leaching.

In comparing all treatments over an entire year, the results showed

Continued on page 74

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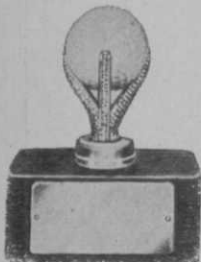
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Beard Continued from page 30

that two pounds nitrogen per 1,000 square feet applied monthly in the form of sewerage sludge or six pounds of nitrogen per 1,000 square feet applied every two months in the form of ureaformaldehyde were the best nitrogen fertilization programs studied.

The combination of sewerage sludge at 1# N/1,000 sq. ft. applied on the 10th of each month plus ammonium sulfate at 1# N/1,000 sq. ft. applied on the 25th of each month ranked third in over-all seasonal appearance. Ammonium nitrate at 1# N/1,000 sq. ft. applied every two weeks was inferior to the above mentioned treatments under the sandy soil conditions of this study.

In comparing the sewerage sludge and reaformaldehyde carriers when used at the same rate of nitrogen and frequency of application, the seasonal appearance of the sewerage sludge was better. In this study, sewerage sludge was found to be the best source of nitrogen for winter fertilization of bermudagrass greens at Gainesville, Florida.

OTHER PAPERS OF INTEREST
 Root tip degeneration of turf grasses, natural and induced.

R.M. Endo. California Turfgrass Culture. 17(3):17-18. 1967. (Department of Plant Pathology, University of California at Riverside, Riverside, California, 92502).

Fertilizer studies on common bermudagrass.

J.L. Stroehlein. 1966 Report on Turfgrass Research, Arizona Ag. Exp. Sta. Report 240. pp. 18-20. 1967. (Department of Agricultural Chemistry and Soils, University of Arizona, Tucson, Arizona, 85721).

Turfgrass varieties

C.R. Funk, R.E. Engel, P.M. Hali-sky and H.W. Indyk. Proceedings of the 1967 Midwest Regional Turf Conference, Purdue University. pp. 54-63. (Department of Soils and Crops, Rutgers, the State University, New Brunswick, New Jersey).

Winter injury and prevention.

J.B. Beard. Massachusetts Turf Bulletin. 4(4):8-21. 1967. (Department of Crop Science, Michigan State University, East Lansing, Michigan 48823). □

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