

answer is that the grass is too slow in getting started, loses color after the first killing frost, and is slow in turning green in spring. I would suggest that anybody wanting to try zoysia matrella should plant it in his nursery, properly feed it, and the second year plant the established sod on his tees."

"Perhaps the best solution," concluded Linkogel, "is to plant half of each tee in zoysia and the other half in bent grass. Then in early spring and late fall players can use the bent part of the tee and during the summer use the part planted with zoysia. In that way they would have good playing tees the year around."

SOUTHERN TURF GRASSES

By DR. G. W. BURTON

GSA Convention Address

Speaking extemporaneously at the GSA convention and using Kodachrome slides to illustrate his talk, Dr. Glenn W. Burton, Geneticist at the U. S. Department of Agriculture's Bureau of Plant Industry at the Experiment Station, Tifton, Ga., described the 6 important turf grasses suggested for the South.

BERMUDA GRASS, said Dr. Burton, originated in India. It may be propagated by either seed or sod and is distributed, adapted and used more widely than other turf grasses in the southeastern United States. On poor soils, Bermuda will not produce a weed-free turf. It requires more nitrogen to make a good sod than most southern turf grasses. Moreover, it is difficult to control and keep from spreading into areas where it is unwanted, such as flower beds. Bermuda is among the least shade-tolerant of all southern turf grasses.

Several turf selections have been developed as by-products of the hay and pasture grass breeding project at Tifton, Ga. One selection, known in the Tifton station as No. 12, offers promise as a golf green strain. Another, known as No. 3, should make better lawns and fairways than common Bermuda. Many of these will be thoroughly tested for turf purposes this year.

CARPET GRASS was originated in the western hemisphere and is usually propagated by seed. Well adapted to the Coastal Plain of the southeastern United States, it winter-kills farther north. Carpet grass

requires little fertilization and in addition, grows well on poor soil. It makes a coarse turf and must be mowed frequently to keep the heads down and avoid a ragged appearance. For turf purposes a fine leafed, shorter, seed stalked strain is needed and may possibly be developed by breeding.

CENTIPEDE GRASS, which comes from China, has been propagated heretofore by planting sprigs and sod. However, research underway at Tifton suggests that by proper management and breeding strains may be produced that can be propagated by seed. Centipede grows well on poor soils, and like Carpet grass requires little fertilization. It makes a dense sod which crowds out weeds and other grass, and does not need to be mowed as often as most other turf grasses. It tolerates modern shade and will survive the winters as far north as Greensboro, N. C. Moreover, centipede grass makes excellent lawns, fairways, and roughs.

PENSACOLA AND PARAGUAY BAHIA GRASS is usually propagated by seed. Originally from South America, it is well adapted to the Coastal Plain of the southeastern U. S., but winter-kills much farther north. Growing well on poor soil and requiring little fertilization, it makes a dense sod which crowds out weeds and other grasses. The quality of its turf is very coarse and unusually tough and hard to mow. It therefore is not suited for home lawns. Because it stands so much wear, it is highly recommended for highway shoulders, etc. The narrow leafed types, by-products of the pasture breeding program, show the most promise.

ST. AUGUSTINE GRASS, which is propagated by the planting of sprigs or stolons, tolerates heavy shade, but is otherwise inferior to other turf grasses. It winter-kills north of the Coastal Plain in the Gulf states. The drawbacks of St. Augustine grass are its requirement for more fertilizer and its need for better soil than both carpet and centipede grass. In addition, it is very susceptible to chinch bug attack, a fault that can be overcome by selective breeding.

ZOYSIA MATRELLA OR MANILA GRASS, an oriental grass, has been propagated by planting sprigs, but may be propagated by seed if seed-producing strains can be developed. Indications from preliminary results indicate such strains can be produced.

Zoysia has both fine texture and good color. It makes a dense weed-free sod on good soils when it is well fertilized. It also tolerates dense shade and more frost than other grasses. Principal weaknesses of zoysia are its slowness of growth and the high cost of its establishment from sprigs.