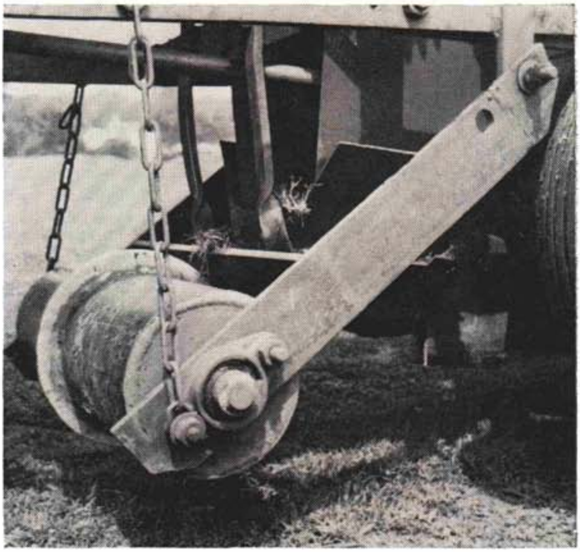
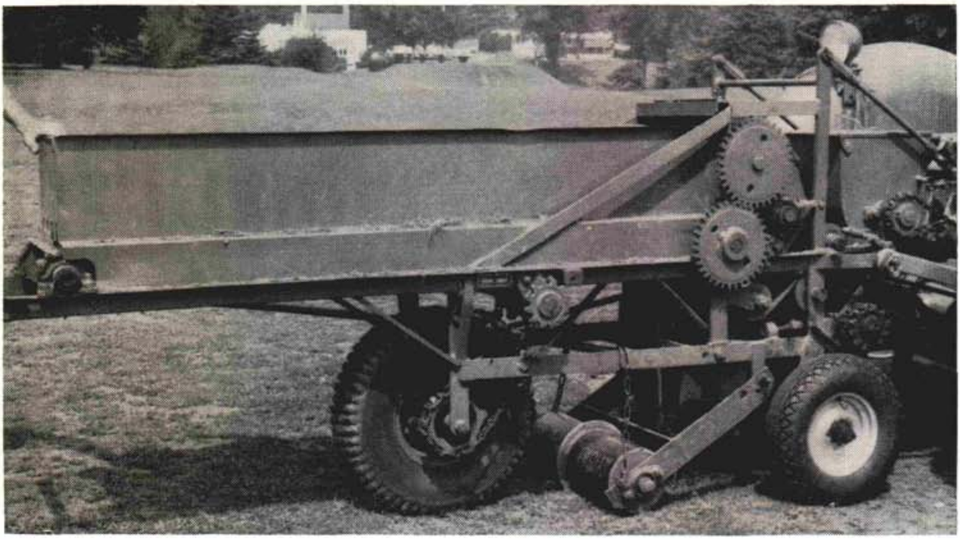


A modification on a mechanical bermudagrass sprig planter made by Marshall Farnham, Bala Golf Club, Philadelphia. Mr. Farnham credits Mr. Lee Dieter, Superintendent of Washington Golf & Country Club, Arlington, Va. for this innovation. A solid steel band is welded to the center of the roller which firmly tamps sprigs into the channel made by the modified plow share.



On The Research Front

Editor's Note: These are abstracts of papers prepared for the annual meetings of the American Society of Agronomy and published in "Agronomy Abstracts."

Soil Warming For Turf Areas

W. H. DANIEL and J. R. BARRETT,
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Investigations were begun in Indiana in 1962 to determine the fundamental requirements for installation and management of electric soil heating cable systems to maintain suitable growth conditions for turf in heavy-use areas. Bluegrass sod transplanted November 10 remained dormant on unheated soil, while root extension was 3-5 inches by December 31 on heated areas. Warmed turf areas had improved playability and increased root growth during the winter, extended growth period in the fall, earlier growth in the spring, and in high wattage areas, growth throughout the winter. Plastic coverings over warmed areas reduced the electric energy required, maintained more greenness in leaf blades and favored growth. However, extra attention to remove and even replace covers to avoid excessively high temperatures and disease buildup was necessary. Heating cables varied from 4-8″ depth, 6-24″ in spacing, 0.8 to 13 watts/sq. ft. in intensity and controlled by thermostats located 1″ below sod, in the thatch, and in the air combinations. Plot size varied from 20 to 1200 sq. ft.

Factors In The Adaptation Of Turfgrasses To Heavy Shade

J. B. BEARD, Michigan State University

Seven grasses in 18 mixtures were studied under heavy shade (5% of incident sunlight) provided by mature maple trees. The area received only natural rainfall, was cut at a 2-inch height, and received 2% of nitrogen per 1,000 square feet per year. Three years results show disease incidence to be the major factor influencing adaptation. Powdery mildew (*Erysiphe graminis*) infection of common and Merion Kentucky bluegrasses resulted in 98% loss of stand with no recovery in subsequent years. Pennlawn red fescue showed a 90% reduction in stand due to leafspot (*Helminthosporium sativium*) but exhibited over 50% recovery the subsequent spring. However, each year reinfection occurred with the advent of warmer weather. Kentucky 31 tall fescue, common perennial ryegrass and Norlea ryegrass performed poorly due to snow mold (Typhula spp.) and low temperature injury during the winter period. Roughstalk bluegrass produced an acceptable turf for two summers but was severely thinned by disease in the third year which correlated with thatch accumulation. The higher humidities, extended dew periods and more succulent growth in shade resulted in disease being a more important factor in adaptation that light intensity or moisture.

Effect Of Nitrogen On Organic Food Reserves And Some Physiological Responses Of Bentgrass And Bermudagrass Grown In Various Temperatures

R. E. BLASER and R. E. SCHMIDT, Virginia Polytechnic Institute

Bermudagrass and bentgrass were grown 45 days at 50, 70, and 90°F. with high and low N fertility. Total and protein N were highest in bermuda at 50 and 70° F. and in bent at 90° F. Bermuda rhizomes subjected to 50° F. were higher in acid extractable carbohydrate ((AEC) than those at higher temperatures. Bent stolons and leaf AEC decreased as temperatures increased. The ethanol extractable portion of AEC was greater in bent than in bermuda. Clipping weights increased with temperature, especially with bermuda. Yield of bent roots increased as temperature decreased. Bermuda roots developed best at 70° F. and poorest at 50° F. Net assimilation rate was largest at 70° F. for both grasses and smallest at 50 and 90° F. for bermuda and bent, respectively. High N rate increased respiration, net assimilation rate, clipping weights, and total and protein N, but decreased root weights and reserve carbohydrates.