STOP 1

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Symptoms and Correction of Turfgrass Injury from Gasoline, Oil, Kerosene and Hydraulic Fluids.

Turfgrass injury sometimes occurs following unintended applications of various materials. The ability to quickly determine the specific cause of turfgrass injury aids turfmen in taking proper steps to correct such problems.

A study was undertaken to accurately characterize the symptomology resulting from applications of gasoline, kerosene, hydraulic fluid and motor oil to a creeping bentgrass (Agrostis palustris Huds.) turf. The first three materials were sprayed on at rates of 28, 56 and 112 gallons per acre. The motor oil was applied at the same ratio in an oscillating pattern within each plot. After 1 hour, activated charcoal (DARCO S-51) was applied at 200 lb/A across one-third of each plot, and a surfactant (Aqua-gro) was applied at 16 fl. oz./1000 sq. ft. across an adjacent section of each plot.

The sequence of observable symptoms was recorded after 1 and 3 days. The effects of activated charcoal and the surfactant on turfgrass injury was also determined.

The gasoline-treated turf showed the most striking symptoms immediately following application. The turf turned a dark green color and had a water-soaked appearance similar to that observed for some turfgrass diseases. The dark green color persisted through the second day when it gradually turned brown by the third day after treatment. The extent of turfgrass injury or death appeared to be proportional to the rate of gasoline applied; 112 gallons per acre produced nearly complete kill of the turf while the 28 gallons per acre rate resulted in approximately 10% browning and moderate chlorosis of the remaining turf. Neither activated charcoal nor the surfactant appeared to substantially reduce turfgrass injury from gasoline.

The kerosene-treated turf showed no appreciable injury during the 3-day period following application at the rates applied.

The hydraulic fluid produced a bright green turf that gradually turned yellow-green by the third day following application. The extent of permanent turfgrass injury from hydraulic fluid is yet to be determined.

Motor oil produced results similar to those from the hydraulic fluid.

Neither activated charcoal nor the surfactant appeared to change the nature or extent of turfgrass injury from the 4 treatments.

The above investigations are concerned primarily with the effects on above-ground turfgrass shoots. The effects and correction of higher levels of soil contamination by the four materials are also being considered.

Bentgrass Variety Evaluations for Greens.

Eighteen bentgrass varieties, both seeded and stolonized, were established September 30, 1968. They are mowed daily at 0.25 inch with clippings removed. Split-plot nitrogen application rates of 4 and 7 pounds per 1000 square feet per year are applied across the plots.

Toronto, a vegetatively established creeping bentgrass, and Penncross, a seeded creeping bentgrass, have ranked highest in turfgrass quality during the initial two growing seasons (Table 1). These two are followed closely by the seeded European selection known as Emerald and a Michigan State University selection, MSU-28-Ap. Kingston velvet bentgrass, which initially rated quite high in turfgrass quality, is slowly declining due to the invasion of off-type plants. Other bentgrass varieties performing quite acceptably but ranking slightly lower than the previously listed varieties during the initial two years include Pennpar, Cohansey, and two other MSU selections. Ranking below these creeping bentgrasses are a number of colonial bentgrasses including Exeter and Astoria.

The older bentgrass varieties established in late fall of 1961 can also be observed immediately east of the new experimental area. The 1961 plantings are to be terminated immediately following the field day. During this ten year evaluation period Toronto, Penncross, and Cohansey creeping bentgrass have ranked as the three best varieties. Of particular interest is the extent of thatch accumulation occurring over the years as well as the relative ability of the individual varieties to prevent the encroachment of off-type bentgrasses that cause an objectionable degree of variability.

Table 1. 1970 BENTGRASS VARIETY EVALUATIONS FOR GREENS.
East Lansing, Michigan

Bentgrass (*Agrostis*) Variety	Type	Visual Turfgrass Quality Ratings (1-Best; 9-Poorest)**
*Toronto	creeping	2.1
*Penncross	creeping	2.2
Emerald		2.3
*MSU-28-Ap	creeping	2.3
Nr. 42-23		2.3
Kingston	velvet	2.4
*Pennpar	creeping	2.6
*MSU-18-Ap	creeping	2.6
*Cohansey	creeping	2.7
*MSU-38-Ap	creeping	2.7
Seaside	creeping	3.3
Exeter	colonial	3.6
Brabantia	colonial	3.7
Astoria	colonial	3.7
Holfior	colonial	3.8
Highland	colonial	3.9
Boral	colonial	4.0
BT 806 Browntop	colonial	4.0

*Established vegetatively from stolons.

**Average of 6 seasonal ratings.