

2). The statistical analysis of this study indicates that the watering in had no statistically significant differences and the only differences occurred between different herbicide treatments averaged over both watering in and not watering in treatment sets. Thus, the data in Table 2 is displayed in two different ways. The first sets of data displayed show the means for watering in and not watering in at the three evaluation dates. According to the statistical analysis, there were no differences between watering in versus not watering in for each herbicide treatment. The only statistically meaningful differences are shown in the single columns of percent crabgrass and these values represent the amount of crabgrass for each herbicide regardless of whether it was watered in or not. This data gives good information on the performance of the individual herbicide treatments. Notice the excellent control given by both rates of prodiamine. This new herbicide from Sandoz Crop Protection is expected to receive federal labeling very soon. Also notice the values for turf density found in the last column of the table. This visual data indicated that the high rates of prodiamine and Team herbicides caused noticeable thinning of the plots. Other rates of Team and Balan also seemed to cause some thinning although not statistically different from all of the controls. While this data showed quite a bit of variability, the prodiamine plots could be picked out rather easily and indicate that this product may cause unacceptable injury. Other products giving excellent control of crabgrass include Dimension at rates of 0.38 and 0.5 LB/A and the 3.0 LB/A rate of PreM (Table 2).

LYSIMETERS FOR TURF LEACHING STUDIES

If you have followed the turf industry or agriculture in general for the last three years, you have to be aware of the intense public concern over the potential for ground and surface water contamination from chemicals and fertilizers used in turfgrass management. In response to this concern we have undertaken the construction of a unique system for measuring the amount of leaching of agrichemicals applied to turf. The general term used is a lysimeter, which is a device to collect drainage water from soils. A container lysimeter is one that works by building a large metal container into which soil is placed and a drain at the bottom is used to collect all the leachate coming through the soil. Lately, the influence of macropores on pesticide leaching has become a major concern. Macropores are channels through the soil that can conduct water (and pesticides or fertilizers as well) rapidly through the soil. Macropores can be formed by earthworms, decaying root channels, etc.

In order to preserve the natural soil structure, including macropores, our lysimeters were specially constructed and are termed intact soil monoliths to denote the fact that these lysimeters are an intact block of soil 1 m² in diameter (approximately 45" in diameter) and 1.2 m deep. Two of these intact soil monolith lysimeters were excavated, captured, and installed at the Hancock Turfgrass Research Center. The process began in early September of 1989 and was finished in April of 1990.

The plots were sodded to a blend of Kentucky bluegrass turf in mid-August. Initial testing was conducted by applying bromide, Br-, to the lysimeters and then measuring the time it took for the bromide to leach through the soil cores. Bromide is an inorganic anion that behaves similarly to nitrate. Results of these leaching studies are discussed elsewhere in these proceedings (see article by Miltner in this issue).

We have received a grant from the United States Golf Association Green Section Research Committee to investigate the leaching of a variety of pesticides commonly used in turf management. We will also study the fate of nitrogen in turfgrass soils using the lysimeters to quantify the amount of nitrate leaching that occurs from a single application of 1 lbN/M of urea applied in the late fall or early spring.

1990 VARIETY EVALUATIONS

Seven active variety trials are currently being evaluated at Hancock Center and other sites around the state. Three of particular interest are presented here (Tables 3-5). Those trials are the bentgrass variety trial, the Kentucky bluegrass variety trial, and the tall fescue variety trial. The bentgrass variety trial is new and was seeded in the fall of 1989. The trial consisted of 21 varieties established as a green. Mowing height was 1/4" and will be lowered to 1/8" over the course of the next growing season. Ratings were taken at the end of the 1990 growing season as the trial began to mature. These data have to be evaluated with caution since these are strictly quality data without any traffic being applied to these plots.

The data on Kentucky bluegrass shows Princeton 104 to be an outstanding variety. A current list of recommended varieties can be obtained through the Cooperative Extension Service. Remember when picking varieties, a general rule-of-thumb is that any variety in the top 25% of the trial will give excellent turf quality. Many people look at these trials and want the variety at the top of the list. Often there is very little difference in quality between the top rated varieties in a trial. In fact the performance of Princeton 104 in this trial is very unusual in that it stands so far above the other varieties in performance.

The tall fescue varieties continue to be attractive for use in medium maintenance turfs especially where irrigation may not be available. The number of newly released varieties in this species is impressive but makes it difficult for the turf manager to keep up with all the new varieties. The tall fescues offer several advantages to Kentucky bluegrass in medium maintenance situations. First they have excellent disease tolerance with the most serious disease being brown patch which does not occur frequently in Michigan due to our cooler climate. The wear tolerance of this species is excellent and it needs less frequent irrigation because of its deep and extensive root system. Drawbacks of this species are that it does not blend well with other grass species and it is only weakly rhizomatous.