STOP #2

EXAMINING THE TURFGRASS ROOTZONE WITH MINIRHIZOTRONS

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Minirhizotron is a term coined to describe a new system for viewing root growth and development. The minirhizotron uses a 2" diameter plastic tube inserted into the soil at a 30 degree angle to the soil surface. Tube length can be as long as desired, however, in this study tubes are 36" long which corresponds to a vertical depth of 15 inches. A special camera is then inserted into the tube and photographs of the roots at the soil-tube interface are stored on a video cassette tape. This study was initiated to study the effects of five commonly used preemergence grass herbicides on the rooting of a "Touchdown" Kentucky bluegrass turf. Unfortunately, no data is yet available on the effects of these herbicides on root growth.

The purpose of this stop is to introduce you to this new and powerful technique for viewing turfgrass roots. We believe this technique to be superior to a conventional rhizotron. A conventional rhizotron has several drawbacks including high initial construction cost, limited number of observation cells, and intensive labor during the experiments. On the other hand, minirhizotrons are relatively inexpensive to install and they can be installed at any turf site. In addition, because the minirhizotron uses a VCR system to record data the tedious analysis of the data can be done at any time. Thus there is virtually no limit to the number of tubes that can be installed and analyzed. In a conventional rhizotron, data has to be analyzed and recorded in a real time manner. This limits the number of treatments that can be examined in any one growing season.

The minirhizotron represents a major improvement in techniques to study rooting. It is anticipated that we will be able to expand this program and contribute some valuable information on turfgrass root growth and development.