

Progress Report- Six Months

Elvina J. Slosson Endowment for Ornamental Horticulture

Using Soil Moisture Sensors to help Evaluate the Water Usage of California Native Plants with the Potential as Landscape Ornamentals (Year 2)

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Introduction

The overall goal of this project is to compare soil moisture sensors to find a new irrigation scheduling method for California urban landscapes. We are using several different soil moisture sensors and testing their reactivity to an irrigation occurrence. The sensors that are being used in this project are granular matrix sensors (Watermarks), tensiometers with pressure transducers, capacitance sensors (ECH₂O) and time domain reflectometry (Campbell TDR). We are using *Erigeron* 'Wayne Roderick' as our experimental plant. The plants will be irrigated based on 20, 40, 60 and 80% ET₀ which will be organized in a completely randomized design. We will gather data on the reaction times of the soil moisture sensors after an irrigation event with a Campbell data logger.

Goals/Objectives

We are setting this experimental plot up next to our previously funded Oki and Deering Slosson project for 2004-05. We will be sharing the Campbell weather station and data logger from the afore mentioned experiment with this experiment. We have set up a portion of the drip irrigation system for the project. Each plant will have 2-2gph emitters. We have mulch at the site waiting to be spread over the two rows.

Early spring 2005 we will plant the *Erigeron* 'Wayne Rodericks' in the 2 rows and begin their establishment. We will also be installing the soil moisture sensors around the plants and hooking them up to the data logger. During the late spring and summer we will collect and analyze the data from the sensors, as well as, collect data on the performance of the plants. Fall of 2005 we will use the synthesized data to publish articles on the performance of the soil moisture sensors. Ideally we would like to find a sensor that has the range of an ECH₂O, the reaction time of a tensiometer, with the cost of a granular matrix sensor.

Discussion

We believe that we will collect valuable data from this project that will help determine which sensors are best for determining when to irrigate in landscape settings. Some of the items that will be considered when determining which sensors to suggest are: response time to irrigation, cost, its measuring range, and reliability.

Since we just received the go ahead on the project this past summer we are still in the initial phases of set up. The planning has been interesting and we have learned a lot from other articles and a conference we attended on soil moisture sensors in Seattle this fall. However, we are looking forward to working out in the field this spring and summer and collecting data. By this time next year we hope to have some meaningful data to report back to the committee.