

SubTerranean Irrigation System (STIS)

A Water-Saving, Growth-Enhancement Device for Irrigating Trees

Arizona State University Growth Performance Evaluation

Description of Test:

- Seven newly planted Mesquite trees
 - at ASU Polytechnic, in Mesa, Arizona.
 - The trees were located along the middle of the walkway between the Technology and Center buildings.
 - The trees were planted during the fall semester of 2002, and the testing began in January 2003.
- Four (Trees #1, #2, #3, #4) of the trees were equipped with the STIS system, in which the irrigation water was discharged inside the STIS canister.
- The other three control trees (Trees #5, #6, #7) did not have the STIS system, but received equal amounts of irrigation water through emitters placed on the surface of the soil.
 - On both cases, rocks covered the ground.

The table below shows the growth of each tree. On the average, during the period that both set of trees were receiving irrigation water, the trees receiving water through the **STIS grew 59%** while the trees receiving water by the conventional method (emitters on the surface) grew 53%.

Date	STIS Tree circumference (cm)				average growth, %	Control tree circumference (cm)			average growth, %
	Tree #1	Tree #2	Tree #3	Tree #4		Tree #5	Tree #6	Tree #7	
<u>Jan 18, 2003</u>	15	15.3	15.2	15.1	0%	15.5	15.1	14	0%
<u>May 3, 2003</u>	16	17.5	16.5	15.5	8.05%	16.1	15.9	14.8	4.96%
<u>Oct 25, 2003</u>	23.6	24.8	26	24.3	59.3%	24.9	24.6	22	52.7%