

Residential irrigation water application influenced by socioeconomic parameters

This poster demonstrates the relationship between socioeconomic parameters and sensor technology on irrigation water application. Nearly all new homes in Florida are constructed with automatic in-ground irrigation systems. Studies have shown that residential lawn and landscape irrigation can account for more than 64% of a home's total water use. Over irrigation can specifically contribute to nonpoint source pollution by increasing runoff containing pollutants from the suburban landscape. Furthermore, recent research in Florida has indicated that homeowners are over irrigating, by irrigating more than the plant-water needs based on local evapotranspiration and precipitation rates. Irrigation water use conservation efforts are necessary due to the rise in the State's population. Influences on consumer's willingness to demonstrate water conservation are based on socioeconomic conditions of the community, income and age of the residential user, physical infrastructure (age and size of household), climate factors, lawn size, price of water, and non-price conservation programs, policies, or ordinances. Irrigation water use will be correlated to property value, property size, landscape design, existence of a swimming pool, and use of conservation technology for 146 homes in Pinellas County based on five years of monthly utility data. Additionally, 58 of the homes have one year of sub-metered irrigation dataloggers which allow for detailed observation of irrigation practices, including time of day and number of days per week. Homes within this County are permitted to run irrigation cycles only once per week, however it has been observed that many homes do not comply with this ordinance. The water conservation technologies and practices included are rain sensors, rain sensors plus educational materials, or soil moisture sensors. Based on the attributes, the irrigation water application is being compared to draw conclusions about external factors affecting conservation practices.

Keywords: residential, irrigation, conservation, technology, socioeconomic