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ITC Expands

As part of the implementation plan for 2003-2004, the number of programs offered and coordinated by the Irrigation Technology Center (ITC) is being expanded. In addition, plans are underway to develop the first ITC facilities in San Antonio, a turf/groundcover experimental site.

Existing programs being brought under the ITC include the Texas A&M School of Irrigation which provides continuing education for irrigation professionals, the Texas ET Network and Website which provides daily ET_o data and irrigation watering advice, and the Irrigation District Engineering and Assistance program.

The Irrigation District program includes applied research into GIS-based management systems, rehabilitation planning tools, and remote sensing for leak detection; technical assistance on analyzing water delivery problems, seepage loss measurements, etc.; and classroom and individual training on GIS and Surveying with GPS.

The ITC website has been redesigned to accommodate these programs. Also, new on the

website is the link: "Irrigation Literature" which provides a listing by topic of Texas Cooperative Extension publications, as well as Extension publications from other states.

Several on-going projects will now be managed through the ITC, including two large-scale drip versus furrow on-farm evaluations in South Texas, and investigations of ET controllers and drip irrigation with municipal wastewater in San Angelo.

The ITC will now formally handle individual and group training in irrigation. Texas A&M receives many requests for this service. For example, this fall, the ITC conducted training programs for visitors from India, Yemen and Tajikistan.

The ITC will also work with the Texas A&M International Agriculture Programs Office on international projects. One example is the development of urban and ag water management courses with a university in Jordan.

Faulkner Awarded USCID Scholarship

Brock Faulkner, a senior Agricultural Engineering student at Texas A&M University and a student technician for the ITC was awarded the 2003 United States Committee on Irrigation and Drainage's Summers Engineering Scholarship.



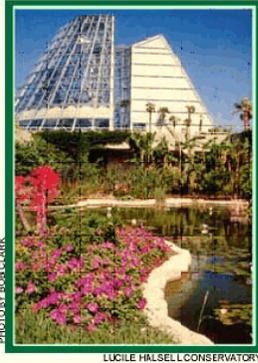
Joseph Burns, President, Brock Faulkner, and Joseph McGahan, Secretary, at the USCID conference held in May 2003.

In applying for the scholarship, Brock submitted a research plan related to the design of a sprinkler test lab being proposed for the ITC. The lab will be the first giant wind-tunnel designed specially to test sprinkler performance in windy conditions. The benefits of the lab will be to develop wind adjustment design factors to ensure more uniform water application and less loss.

Brock holds the rank of Cadet 1st Lieutenant in the Texas A&M Corps of Cadets, maintains an grade point average of 3.8, and plays in the Aggie Band. The scholarship was presented to Brock at the USCID International Conference in Phoenix. About the conference, Brock said that "it afforded me the opportunity to see different aspects of irrigation and the vast need for irrigation engineering throughout the nation and the world."

Public Service Project

The Texas Turf Irrigation Association (TTIA) has joined forces with the Irrigation Technology Center to tackle the difficult task of rehabilitating the irrigation system of the San Antonio Botanical Gardens. In addition to improving irrigation at the Gardens, this will serve as a model for future ITC public service projects conducted jointly by the irrigation industry and public agencies.



Also participating are the San Antonio Parks and Recreation Department and the San Antonio Water System, who will help cover some of the costs of the project, and three students from Texas A&M University.

Like many other public institutions, the irrigation system at the Gardens is old and not well maintained. In addition, the Gardens grew around and on-top of the existing irrigation system, leaving the system split by sidewalks and buildings, with turf areas and low-water bedding plants in the same irrigation zone. The Gardens would also like to expand the system and reduce hand watering, but only with minimal impact on the valuable plant materials already in place.

The A&M students are using the project to meet course requirements for a senior level class where students work in teams to solve engineering design problems. This is a two semester class, with a final project report due in May 2004.

A&M students working on the project are Eric Fisher, Lindsay Birt, and Lisa Porta. Lisa stated, "we are excited about being involved in the San Antonio Botanical Gardens Irrigation System project with professional teams. This is the first time we are able to work on a real engineering project. The interaction with experts in this field will give us the opportunity to learn a lot and it prepares us for 'real world' jobs." The senior design team will conduct the site evaluation, develop a detailed site map, and help design the irrigation systems.

The TTIA Board of Directors enthusiastically endorsed the project at their meeting on September 24, 2003 and appointed John DeCell

from Software Republic in Houston to head the industry design team. The TTIA Directors also expressed a desire to turn the Botanical Gardens into a show piece for improved irrigation technology and management.



A&M Students working on project: Porta, Fisher and Birt

DeCell's Comments

As a representative of the Texas Turf Irrigation Association, I consider it a privilege to work with the students of Texas A&M University on the San Antonio Botanical Gardens irrigation design project.

The TTIA is creating a team of three designers to assist the students in this project. As of now, the team consists of Doug Goodwin and myself. Doug is a licensed irrigator and graduate of Texas A&M University with twenty years of experience in irrigation design and installation. We are still in the process of selecting the third team member from the San Antonio area.

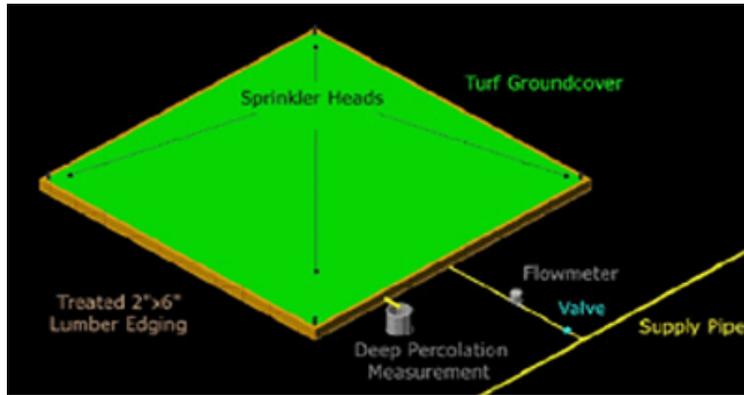
Any redesign of an existing irrigation system is always a major undertaking. Before this project is completed, I believe it will prove to be even more complicated than most. The site is broken up into multiple individual gardens. Each garden contains plant material with varying water requirements. Our assignment of designing a system that can irrigate each garden efficiently and be installed with a minimum amount of disruption to the existing plant material is a complex task.

In addition to the design of the system, we must select a control system that has the required flexibility while not becoming too difficult for on site personnel and volunteers to operate. This is not going to be easy, but I believe we are all up to the task.

Turf/Groundcover Field Site

Plans are underway to construct the first ITC facility in San Antonio, a Turf and Groundcover Field Site for accurately determining the water requirements of turf and groundcovers used in South Texas. This will be a cooperative project with the San Antonio Water System, Texas Turfgrass Producers, and the Texas Nursery and Landscape Association.

This facility will include 180 independent test plots, each with a flow meter, soil moisture sensors, and a runoff/deep percolation measurement device. The facility will also have an on-site weather station and central control/data systems. Water requirements will be determined based on the ETo, coefficient, and allowable stress model.



Concept design for each of the 180 plots planned for the site

The results of the testing program will provide turf producers, nurseries, and retailers drought tolerance data to use in their marketing programs and to quantify the impact of organic material and other factors on drought tolerance of turf and other groundcover materials.

The data will also help guide the city in its consideration of incentives and

recommendations made to homeowners, businesses, and developers to be used to achieve the city's long term water use goals.

SAWS will provide most of the funds for constructing and operating the system over the first 3 years. User fees will be implemented in the future to help cover on-going operational costs. SAWS Conservation Director, Dr. Calvin Finch says "the Field Site will be important to San Antonio and cities all over Texas in their

quest to improve landscape irrigation efficiency."

The ITC will oversee the design, installation and management of the facility, design the central control and data system, and develop irrigation schedules and water balance

procedures. The weather station data will be on the TexasET Network website.

This facility will also serve as a model for future ITC developments - jointly built, owned and operated facilities between public agencies and industry.

ITC Sponsors Lower Rio Grande Irrigation Conference

The Irrigation Technology Center teamed with the Lower Rio Grande Valley District Managers Association and Texas Cooperative Extension to sponsor the 6th Lower Rio Grande Irrigation Conference and Trade Show that was held on October 28, 2003 in McAllen.

The trade show allowed participants to see the latest in irrigation technology for conserving water. The region is in its straight 8th year of drought and water shortages in the Rio Grande River.

The morning was divided into two sessions. The first session dealt with regional water issues and

irrigation rehabilitation and improvement programs. The second session provided an overview of improved irrigation technologies and management practices for both districts and on-farm irrigation.

Three concurrent workshops were offered in the afternoon on center pivot, furrow and drip irrigation. These workshops were designed to provide detailed information on the selection, management and optimization of these technologies. Representatives from industry helped conduct the workshops.

European Irrigation Lab Tour

Last October, Dr. Guy Fipps, ITC Director, visited two of Europe's most well-known irrigation test laboratories - in France and Italy. The purpose of the visits was to gain ideas on the design of new facilities being planned in Texas and seek opportunities for international collaboration on testing methods and irrigation design standards.

The French lab is located in Le Tholonet, a small town outside of Aix-en-Provence in South France and is part of CEMAGREF (the French equivalent of the USDA-ARS). Dr. Fipps' host was Bruno Molle, an irrigation engineer and director of the test program.



Bank of sprinkler testing containers at the CEMEGREF Lab in France

In addition to showing Fipps the testing laboratories and facilities, and changes learned from experience, Mr. Molle discussed their recent work in developing testing protocol for

large-scale testing of outdoor agricultural systems and publications written for farmers on irrigation selection and management. Mr. Molle is also spearheading an effort to foster greater collaboration with the other irrigation testing laboratories in the world and expressed interest in working with the ITC as our facilities develop.

Next Dr. Fipps visited the National Irrigation Laboratory of Italy, located outside of Pisa. While there, Dr. Fipps met with Marcello



Bertolacci shows bench test apparatus for drip tubing

Bertolacci who runs the day-to-day operations of the lab, and Professor Pier Gino Megale who directs the lab and teaches at the University of Pisa.

"What was impressive about the Italian lab," said Fipps, "was how they maximize the use of their facilities and use great

creativity in packaging the test results into products for the Italian irrigation industry to improve irrigation design." The lab is part of the University of Pisa, but also generates revenue from testing services.

Fipps Named Director

On November 11, 2003, Dr. Ed Hiler, Vice Chancellor and Dean for Agriculture and Life Sciences of the Texas A&M University System named Guy Fipps as the first director of the Irrigation Technology Center.

The ITC was created by action of the Texas A&M University System Board of Regents on May 22, 2002 as a center of the Texas Water Resources Institute. Dr. Allan Jones, Institute Director recommended Fipps for the position.

Fipps originated the idea for an irrigation center in Texas and has been working with external groups and organizations since 1999 on



Fipps teaching a continuing education class

formulating the mission and visions for the ITC. Fipps raised initial contributions of \$150,000 to conduct a feasibility study and formulate a business development plan.