

Rio Grande Basin Initiative

OUTCOMES

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Texas A&M University System
Agriculture Program
•
New Mexico State University
College of Agriculture and Home
Economics

Students Try on New “Hat”

Water well screening program provides efficient water for urban consumers and irrigation

by
Jenna Smith

Experts in the water science field are getting younger and younger. Nearly 200 high school and middle school students in El Paso County screened water samples for private well owners in the area.

Monty Dozier, water resources specialist with Texas Cooperative Extension, working with local County Extension Agents Ray Bader, Orlando Flores and Jimmy Rodgers, conducted the private water well screenings as a component of the El Paso Youth Water Leadership Institute at three El Paso County schools—Clint High School, Fabens Middle School and Canutillo High School.

Dozier said students benefited from the hands-on aspect of the program and enjoyed learning how to analyze water. The methods they used were similar to those used in the real world.



Dozier works with students to screen water.



Monty Dozier explains the process of screening water to students at the El Paso Water Screening Camp.

In addition, land owners received water quality information for free.

El Paso County Extension agents solicited teachers to participate in the screening program. Teachers then chose which students would take part in the water sampling opportunity. Water sample kits and bags were distributed to county landowners who wanted to have their water tested on a volunteer basis.

“The program helps private well owners make informed decisions on how to use their water to reduce health impacts on themselves, their families, livestock, pets and plants.”

Clint High School students participating in the screening began by attending a watershed protection seminar at the school. Similar, condensed versions of the presentation were also

presented at Fabens and Canutillo high schools. Dozier said the seminar introduced students to how water behaves in the environment, potential sources of contamination, water use trends and how our everyday activities impact the world around us.

“The seminar was a lead-in to why we screen or test water for various contaminants,” Dozier said. “Students learned how to make a determination of water quality based on available data.”

During the two-day program, students were trained in lab analysis and reporting using mobile lab techniques. More than 56 water samples were screened for the presence of contaminants, especially fecal coliform bacteria. Both animal and human sources contribute to fecal coliform contamination.

“Students learn how their individual activities and those of others impact the quality of water in the watershed where they live.”

Dozier said that many times, water quality problems associated with fecal coliform is a local issue around an individual well.

“The program helps private well owners make informed decisions on how to use their water to



Students nitrate testing their water samples.



Students test their water for fecal coliform.

reduce health impacts on themselves, their families, livestock, pets and plants,” Dozier said. “Students learn how their individual activities and those of others impact the quality of water in the watershed where they live.”

The screening program is offered to counties across Texas as a means to educate private well owners on knowing the water quality of their well and how to better manage and protect their well from contamination.

“Our main message that we try to drive home for the students is that everyone lives in a watershed, and everyone impacts the quality of water in that watershed.”

The water well screening program began in 1999 and has grown each year to include additional counties in various parts of the state.

“We have been asked back to several of the same counties year after year,” Dozier said. “Our main message that we try to drive home for the students is that everyone lives in a watershed, and everyone impacts the quality of water in that watershed.”

Photos courtesy of Monty Dozier

CroPMan Programs Aid Growers

Computer models help growers irrigate crops efficiently

by
Danielle Supercinski

Crop simulation models have been developed and used by the research community to simulate the impact that cropping practices have on yield and natural resources—soil, water and air.

Many models are only designed to simulate the growth of specific crops, but the EPIC model is capable of simulating a wide variety of crops and cropping practices. In recent years, two Windows-based decision aids, CroPMan and WinEPIC, were developed by Drs. Tom Gerik, Wyatt Harman, Jimmy Williams and others at the Blackland Agricultural Research and Extension Center. They wanted to harness the capability of the EPIC model so Texas growers and Cooperative Extension could readily identify the most effective cropping practices that conserve water for irrigation and improve production and profitability.

“CroPMan and WinEPIC are being field tested with growers, Texas Cooperative Extension and

Texas Agricultural Experiment Station researchers in South Texas to identify cropping practices and monitoring technologies that most effectively conserve water applied through irrigation with minimal adverse impact on crop yield and profitability,” said Tom Gerik, Experiment Station Researcher at Blackland Agricultural Research and Extension Center in Temple.

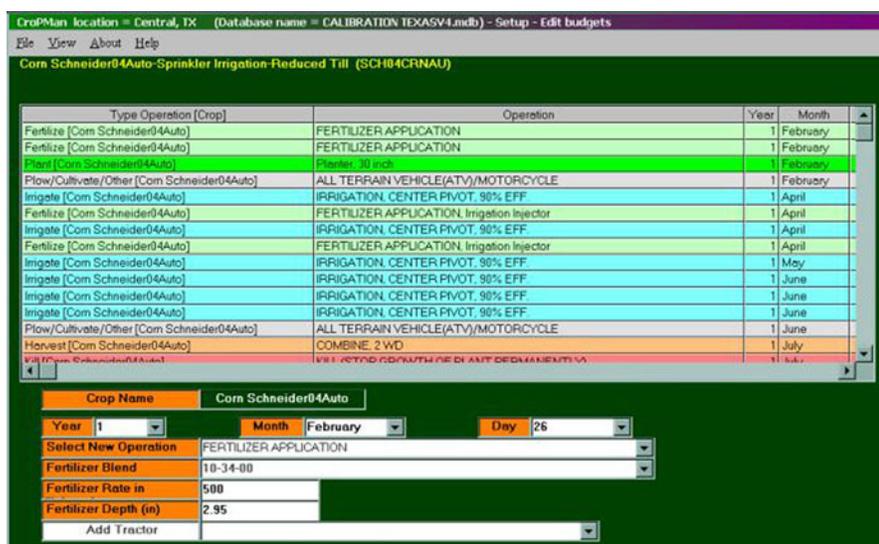
“CroPMan and WinEPIC identify cropping practices and monitoring technologies that most effectively conserve water applied through irrigation.”

“The project entails monitoring and assessment of current cropping practices on grower’s fields in the Rio Grande Valley, Coastal Bend, Upper Gulf Coast and Texas Winter Garden (near Uvalde).”

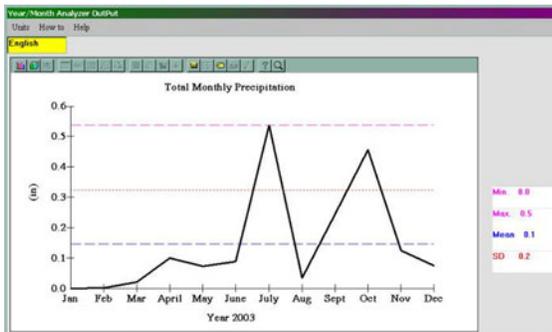
CroPMan is used to assess “real-time” situations in the field—estimating crop and soil-water-fertility status, and to project implications of additional irrigation and fertilization (i.e., timing and amount) on crop productivity, Gerik said.

“CroPMan is designed to be used by Extension specialists and agricultural consultants,” he said. “Many of EPIC’s features are hard-wired and streamlined for Texas.”

CroPMan contains a feature known as “Projected Run,” which enables the user to assess the “real-time” status of a crop by stopping the model on any date of interest. The user can then update the soil or crop status, or alter subsequent management operations. They can estimate crop yield using 30



The screen image shows one of many CroPMan interfaces. Users can choose which operation they would like to select, for how many years, which month and even which day.



CropMan provides numerous graphical outputs, including total monthly precipitation for any given year(s).

to 100 location specific weather scenarios through the end of the growing season. This feature assists growers with decisions on replanting, late planting, irrigation timing management and estimates of yield. CropMan provides graphical outputs of numerous growth characteristics, crop stresses, economical variables and pesticide fate variables.

“WinEPIC was designed to provide researchers with all the features, power and flexibility as EPIC,” Gerik said.

“The databases are constructed for the five distinct agricultural regions in Texas - West, South, Central, East and the Lower Rio Grande Valley.”

WinEPIC is used to determine long-term implications of new irrigation practices, such as conversion of furrow irrigation to sub-surface drip and/or low energy spray application (LESA)/low energy precision application (LEPA) sprinklers, and comparisons of single cropping (monocrop) and double cropping systems.

“In WinEPIC the user can manipulate EPIC’s control files to simulate the full range of cropping scenarios,” he said. “The user can compare results of hundreds of scenarios (runs) through the batch mode.”

WinEPIC does not contain the ‘Projected Runs’ feature or graphical output of results found in CropMan. However, all data are stored in Microsoft

Access tables where the user can view and export the data for further manipulation, and both programs use the Microsoft Access structure to operate.

“The databases are constructed for the five distinct agricultural regions of Texas – West, South, Central, East and the Lower Rio Grande Valley,” Gerik said.

Each database contains tables with actual soil data, historical weather data, field operations, common crops and cropping systems, crop parameters, machinery/equipment, and numerous control type files. The field operation budgets include information on the type and timing of cultural practices such as tillage operations, irrigation, fertilization, planting date and harvest date.

“All operation budgets can be edited to produce the desired cropping practices of the user.”

“All operation budgets can be edited to produce the desired cropping practices of the user,” Gerik said. “Daily weather files and weather stations can be updated and created through a complementary software utility named the Crop Weather Analyzer.”

CropMan, WinEPIC and the Crop Weather Analyzer are available on CD-ROM or can be downloaded from the CropMan website at <http://cropman.brc.tamus.edu> or by contacting Tom Gerik at gerik@brc.tamus.edu.



Photos courtesy of Tom Gerik

Communicating Outcomes

Collaboration leads to water conservation

By

Danielle Supercinski

Sunny skies and cool weather greeted project participants as they arrived at the fourth annual Rio Grande Basin Initiatives (RGBI) Conference, April 12-14, 2005, in Alpine, Texas. It was a productive week that provided numerous discussions on local water issues, agency reports, Task Group breakout sessions and concurrent Task Group reports.

The RGBI is a federally funded effort involving Experiment Station researchers and Extension educators from both Texas and New Mexico. The project partners with a number of other state and federal agencies to enhance water conservation programs. The purpose for the Initiative is to develop and adapt water conservation practices through research and then through Extension education implement water saving practices. Primarily, the project focuses on irrigation efficiency in both agricultural and urban areas.

RGBI project participants from Texas and New Mexico Agricultural Experiment Stations and Cooperative Extension attended the meeting as well as participants of new projects from the Texas State



Some participants stayed for the 02 Ranch Field Tour on Thursday, April 14. Here we are looking at Terlingua Creek, the largest tributary to the Rio Grande in Brewster County. Tour guide Bonnie Warnock shows the slow regeneration of the flood plain after the Terlingua Creek dam failed. Photo courtesy of Charlie Hart.

University System (TSUS) and the University of Texas (UT). This three-day event brought together project administrators, state and federal agency partners from various offices, irrigation district managers, Extension agents and specialists, and Experiment Station researchers.

“A wealth of information is being developed, not only by ourselves, but collaboratively with a number of others involved,” said B. L. Harris, Project Manager of the Rio Grande Basin Initiative and associate director of the Texas Water Resources Institute. “It’s our goal to minimize duplication and encourage collaboration.”

The purpose of this conference was to put all three of the separately funded projects together to discuss methods and ways to collaborate and cooperate, and to prevent unnecessary duplication, Harris said. The conference was also planned to bring the several RGBI Task Groups together for annual reporting of significant accomplishments and joint planning for



Conference participants are listening to the wide variety of speakers scheduled for each session. From here they can collaborate with other Task Group members and formulate their future goals. Photo courtesy of Zhuping Sheng.

future efforts. Peer and merit reviews were facilitated for on-going activities and participants were able to discuss partnership opportunities with federal and state agencies for both Texas and New Mexico.

“Obviously one of the principal themes over the past few days and life of the project has been collaboration, collaboration, collaboration,” said Craig Runyan, Water Quality and RGBI Program Coordinator for New Mexico State University (NMSU), during closing remarks. “It’s meaningful and it’s helped a lot. It’s certainly helped our water program at NMSU. Collaboration isn’t something new to us. Institutionally, professionally, career-wise, that’s what we do – we collaborate.”

Runyan said the collaboration between the universities and the interaction with those universities, stakeholders and other agencies has given us an institutional capacity to keep this project relevant.

The RGBI is in its fourth year and continues to go forward, collaborating and working towards the common goal – to conserve the water in the Rio Grande Basin. Without the collaboration of all of the groups involved, this would not be possible, but together it can be done.

For conference presentations and reports, go to: <http://riogrande.tamu.edu>.

Live, Learn and Thrive

RGBI Team Award presented at NMSU ceremony

By
Danielle Supercinski

Rio Grande Basin Initiative (RGBI) participants received the Team Award from New Mexico State University (NMSU) on April 21, 2005, during the NMSU *Live, Learn and Thrive* awards convocation.

New Mexico efforts are led by Craig Runyan, RGBI Program coordinator for NMSU, and assisted by Leeann DeMouche. Runyan, DeMouche and almost 40 other members of the RGBI received this award for demonstrating the power of team action in achieving significant water savings in agricultural irrigation and in addressing community water needs. In addition, other partners who also received this award were: B. L. Harris, Sterling Grogan, Gary Esslinger and Subas Shah.

The RGBI is a joint project involving NMSU and Texas A&M University Systems Cooperative Extension and Agricultural Experiment Stations. It is a federally funded effort through the Cooperative Research, Education and Extension Services. The project partners with a number of other state and federal agencies, including the

Elephant Butte Irrigation District and the Middle Rio Grande Conservancy District in New Mexico. Once again collaboration has paid off.



(From left to right) Leeann DeMouche, Bill Harris, Craig Runyan and Gary Esslinger were all present to receive the RGBI Team Award for their collaborative efforts in water conservation and efficiency.

Increasing Irrigation Efficiency in the Rio Grande Basin through Research and Education

Through Extension and research efforts, the Texas A&M University System Agriculture Program and the New Mexico State University College of Agriculture and Home Economics are implementing strategies for meeting present and future water demand in the Rio Grande Basin. These strategies expand the efficient use of available water and create new water supplies. This federally funded initiative is administered by the Texas Water Resources Institute and the New Mexico State University Water Task Force with funds from the Cooperative State Research, Education, and Extension Service.

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