

Don't let the river run dry

EFFICIENCY AND CONSERVATION EFFORTS IN THE RIO GRANDE BASIN

An unknown fact to most is that high water demands by agriculture along with the ever-increasing urban population in the Rio Grande Basin and a lack of available water supplies sometimes cause the river to stop flowing before it reaches the Gulf of Mexico. The Rio Grande Basin Initiative (RGI) came into existence to promote efficient use of available water supplies and to implement water conservation practices to meet present and future demands.

Rio Grande Basin agriculture is highly productive, with irrigation claiming more than 85 percent of the river's water. In addition, population growth and urban water demands in the basin have already increased and are expected to double in the next 50 years. Persistent drought in the region also limits the amount of water available for agriculture and urban uses.

Formed in 2001 with funding from the U.S. Department of Agriculture's National Institute of Food and Agriculture, the RGI project, formally titled *Efficient Irrigation for Water Conservation in the Rio Grande Basin*, involves about 150

researchers, specialists, and county Extension agents from Texas AgriLife Research, the Texas AgriLife Extension Service, and New Mexico State University's Agricultural Experiment Station and Cooperative Extension Service, with the Texas Water Resources Institute (TWRI) managing the project. This team works with local irrigation districts, agricultural producers, homeowners, and other state and federal agencies to address the various water issues in the basin.

"The Rio Grande Basin Initiative is a model outcome-based program focused on conducting scientific research to develop new innovative water conservation practices and then conducting educational programs and demonstrating new technologies for producers and homeowners to make them aware of water issues and encourage them to adopt new practices that are more efficient and conserve water," said B.L. Harris, acting director at TWRI.

To help organize these efforts, the project is divided into nine task groups; each focuses on different areas of water conser-

vation and efficient irrigation. The task groups are (1) irrigation district studies; (2) irrigation education and training; (3) institutional incentives for efficient water use; (4) on-farm irrigation system management; (5) urban water conservation; (6) environment, ecology, and water quality protection; (7) saline and wastewater management and reuse; (8) basinwide hydrology, salinity modeling, and technology; and (9) communications and accountability.

"A major strength of the Rio Grande Basin Initiative is the dynamic nature whereby the focus is continually shifting to the highest priorities and opportunities for conserving the maximum amount of water throughout the basin," said Dr. Ronald Lacewell, assistant vice chancellor for federal relations, and member of the RGI economics team.

The RGI project also has a heavy focus on accountability and outcomes to verify benefits of the project. The personnel not only conduct demonstrations, studies, and educational programs, but also keep track of their results—water savings,

RESEARCHERS TRANSPLANT
ABSCISIC ACID-TREATED
WATERMELON AND PEPPER
SEEDLINGS TO EVALUATE
THEIR STRESS TOLERANCE
UNDER A CENTER PIVOT SYSTEM.
PHOTO BY DANIEL LESKOVAR



dollar savings, number of participants, knowledge gained, practices and technologies implemented—and report them on an annual basis, Harris said.

“In this age of accountability, the RGBI is at the forefront, documenting the accomplishments of each activity in terms of water conserved and providing high-quality resources to the communities along the Rio Grande, ensuring a sound and profitable investment of federal resources,” Lacewell said. “Productivity is guaranteed through the process adopted for each year’s work; each participant must document plans and expected results, then sign a contract with the Texas Water Resources Institute before proceeding. At the completion of the year, it is required that each participant document accomplishments.”

Since the inception of the project, more than 4 million acre-feet of water savings have been reported as a result of the various ongoing project efforts. Hundreds of publications, articles, fact sheets, and presentations have also resulted from these efforts.

AgriLife Extension engineers and economists work closely with irrigation district managers to prioritize the need for canal infrastructure improvements, analyze the economic cost-benefit ratio of the needed improvements, and determine which practices should be implemented to receive the most efficiency in the canal systems.

Sonny Hinojosa, irrigation district manager at Hidalgo County Irrigation District No. 2, said, “Our region is faced with increased water demands, drought, salinity, and invasive aquatic plants—issues that impact agricultural, municipal, and industrial users. We rely on the RGBI for assistance with these issues.”

Hinojosa said that RGBI efforts have been of tremendous value to his irrigation district: “During our region’s water supply shortage period, the RGBI assessed the situation, developed strategies to conserve water, assisted in implementing these strategies, and monitored the effectiveness of the water conservation projects.”

In addition to the Texas AgriLife Research and Extension

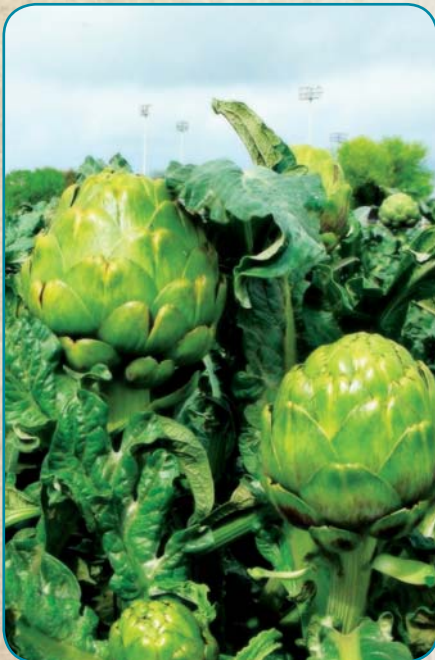
and New Mexico components of this project, Texas A&M University-Kingsville is also involved in the area of on-farm irrigation system management. Shad Nelson, associate professor of soil and plant science at Texas A&M-Kingsville, said his work in on-farm irrigation management is funded largely by RGBI and has created a synergistic relationship between faculty and scientists at the Texas A&M-Kingsville Citrus Center and the Texas AgriLife Research and Extension Center at Weslaco.

“Our collaborative efforts on water conservation projects are providing South Texas growers with measurable water-saving methods for the preservation of irrigated crop production in the Lower Rio Grande Valley as urban growth increases,” he said.

Those are just a few of many examples of how the efforts of RGBI are benefiting the Rio Grande Basin and its citizens. These and many other accomplishments of the project are documented in the annual progress reports. Previous reports as well as the 2010 report can be found at riogrande-conference.tamu.edu.



THE DIVERSION INTAKE FOR THE ORIGINAL RIO GRANDE PUMPING PLANT FOR HIDALGO COUNTY IRRIGATION DISTRICT NO. 2.
PHOTO BY ZHUPING SHENG



AN INTEGRATED PRODUCTION SYSTEM WAS DEVELOPED FOR THE WINTERGARDEN AREA USING GLOBE ARTICHOKEs.
PHOTO BY DANIEL LESKOVAR

“As the associate vice chancellor for federal relations, I find programs such as the RGBI a delight to carry to the people in the region and to provide updates and briefings to members of Congress due to the dramatic advances in water saved attributable to the project, the high level of accountability of each participant, the partnership with New Mexico adding synergism and multi-state cooperation, and the contribution to the communities, both urban and agricultural, located in the basin,” Lacewell said.

And for Hinojosa and the rest of the Valley, the benefits are long-term.

“The effort and commitment put forth by the RGBI will not only help sustain agriculture in

our region, but also provide for its future development,” Hinojosa said. “It is a pleasure to work with a group that possesses such vast knowledge of conservation and efficient use of limited resources. The education and training that the RGBI has brought forth is a tremendous tool that will be utilized for years to come.”

The RGBI has just received its continued funding for the 2010–2011 project year, which signifies the 10th year of the project. As population in the area increases and water supplies become even more constrained, projects like RGBI will be needed well into the future to help ensure availability and quality of water for this region. For further information, materials, and articles about RGBI, visit riogrande.tamu.edu. 