

OUTCOMES

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Texas Wintergarden Gets a Little Greener

Texas AgriLife Research scientists begin unparalleled artichoke production

By Caitlin Churchill

Researchers at the Texas AgriLife Research and Extension Center at Uvalde have developed year-round management practices for artichoke production in the southwest Texas Wintergarden region, an unprecedented happening because almost 100 percent of commercial artichokes in the United States are grown in California.

Artichoke is typically a Mediterranean crop, grown mostly in Italy, Spain, and France. In the 1920s, Italian farmers in California were encouraged to produce the “new” vegetable in the United States. For decades, agricultural history, not to mention California’s conducive climate for artichoke production, has seemingly sealed California’s monopoly on the crop — that is, until Dr. Daniel Leskovar got involved.

“Our contributions proved the technical feasibility of economical production of artichokes as a new crop in Texas,” said Leskovar, Texas AgriLife Research vegetable physiology specialist and professor in the Department of Horticultural Sciences at Texas A&M University. He is the lead individual in artichoke research conducted through the Rio Grande Basin Initiative, Precision Irrigator’s Network and Designing Food for Health project.

According to Leskovar, artichoke production in Texas is not typical because artichoke crops seem to thrive in areas with longer seasons, milder winters and cooler climates moderated by humidity —

conditions often provided by coastal areas. Monthly temperatures for artichoke growth average about 65 degrees. Since 2004, this temperature has been the average in the Wintergarden region, an agricultural area on the Rio Grande Plains north of Laredo that includes Dimmit, Zavala, Frio and LaSalle counties. The region is unique because of its mild winter climate and established year-round production of irrigated vegetables.

Leskovar’s artichoke research in the Wintergarden region began four years ago with the first planting in September 2004. Since then, Leskovar said involved graduate students and collaborating researchers have progressed previous knowledge of the entire agricultural production system — from variety selection to seeding, transplanting, irrigation, fertilization, and harvesting.

In a presentation by Togo Shinohara, a Texas A&M graduate student in the Department of Horticultural Sciences and a research assistant to Leskovar, Shinohara said that in Texas, artichoke seedlings are frequently exposed to high temperatures and rapid soil drying during transplanting. Heat stress inhibits shoot growth of artichokes, and drought stress inhibits root growth.



A project goal for AgriLife Research scientists therefore became the development of strategies to enhance stand establishment under heat and drought conditions. Shinohara

reported that abscisic acid (ABA), a plant hormone, or ethylene regulation offset stress tolerance on artichoke transplants by maintaining plant water status and increasing root growth.

Shinohara also said that harvesting has more impact on the nutritional quality of artichokes heads, than irrigation and nitrogen application rates do. Irrigation rates did, however, significantly improve plant size in terms of length and width. Furthermore, plastic mulch application could save up to 40 percent of needed irrigation amounts without reducing yields.

In four years time, four commercial growers of artichoke have evolved through Leskovar's team's efforts, and H-E-B in San Antonio has sold the local growers' artichokes. Additional testing is now being conducted on small plots in commercial farms located near San Antonio, Fredericksburg and Brownsville.

"The economic viability and profitability of this crop could benefit our regional economy, Texas agricultural producers and consumers. Producing a locally grown premium product – fresh, tasty, and healthy – that can be placed in the Texas market at an affordable price will greatly appeal to consumers. Cutting costs of transportation from California can also mean significant savings for consumers," Leskovar said.

He said Texas artichokes not only benefit the local and state economy, but also the health of Texans. "Artichokes are an excellent alternative crop for Texas agriculture because they have a high profit margin and are also high in health properties," Leskovar said. "They contain strong antioxidants, and are very good sources of vitamins C, K, folate, magnesium, manganese, copper and dietary fiber; plus, artichokes have phytochemicals, which are important in preventing or fighting diseases such as cancer and obesity."



Dr. Daniel Leskovar standing in the artichoke plot under drip irrigation at the Texas AgriLife Research and Extension Center at Uvalde.

Texas artichokes may certainly appeal to consumers' pocketbooks and health-mindedness, but what about their tastebuds?

Michael Adamek, co-owner of Constanzo Farm in Atascosa, Texas, can attest to that. Constanzo Farm has produced crops in Texas for almost 70 years, and primarily supplies produce to H-E-B and local markets. "The artichokes we saw in the Uvalde center were, in a word, beautiful," said Adamek. "Their quality was as good as or better than what we've seen out of California, and so was the taste."

The artichoke research was made possible by partial funds obtained through federal and state entities and programs such as the Rio Grande Basin Initiative of the Texas Water Resources Institute and also funds from the Texas Water Development Board and Designing Foods for Health. Donations of seeds, transplants and irrigation supplies were provided by Condor Seeds, Nunhems, the University of Cartagena in Spain, Speedling, SouthCross Vegetable Transplants and T-Tape.

Photos courtesy of Daniel Leskovar and Danielle Supercinski

RGBI Project on HGTV

Sandoval County Master Gardener demonstration featured on “Gardening by the Yard”

By Jane Moorman

The work of a group of New Mexico Master Gardener volunteers was featured on “Gardening by the Yard,” a Home and Garden Television cable network (HGTV) show hosted by Paul James.

Rio Ranchos Water-Wise Demonstration Garden was featured on the March 15, episode: Xeriscaping, Drought-Tolerant Plants, Wise-Water Practices.

The garden is a cooperative effort of the New Mexico State University Sandoval County Cooperative Extension Service’s Master Gardener program and several City of Rio Rancho departments, partnering with the Rio Grande Basin Initiative, local businesses and community volunteers.

The garden demonstrates that xeriscape landscape has a variety of options, which are visually appealing and easy to duplicate or model in the homeowners’ gardens. Practical gardening methods are taught in the garden by Master Gardeners to anyone in the community interested in gardening while using water wisely.

Paul James learned about the wise-water garden through our Sandoval Master Gardener Web site. He and the film crew toured the garden in May for an episode on xeriscape gardening, said Linda Poe, Sandoval County Master Gardener who was

filmed with James during the tour. He was very excited about the garden. He said it was fun seeing a new garden in the making and learning about the possibilities for high altitude gardening.

Rio Rancho Wise-Water Demonstration Garden is open to the public. The garden, sitting on an acre of land, is located at 950 Pinetree Road SE, off of Southern between the post office and Esther Bone Library. The garden design demonstrates drip, sprinkle, spray and bubble irrigation systems; bark, pecan, wood chip, crusher fine, and gravel mulches; plus water harvesting techniques: dry creek beds, swales, berms, and drain ways leading to catchment areas.

An entertaining half-hour program, “Gardening by the Yard” is designed for people who want their yards to look great but don’t have a lot of time to spend on them. The host, Master Gardener Paul James, focuses on the lighter side of gardening and gives down-to-earth advice about gardening basics such as soil, watering and trees. He troubleshoots such common gardening difficulties as poor light and pests.

Additional information on the Sandoval County Master Gardener demonstration and photos can be found at: <http://aces.nmsu.edu/county/sandoval/mastergardener/water-wise--garden.html>.



CSREES *Partners*

Video magazine releases segments on Rio Grande Basin Initiative

By Caitlin Churchill

The U.S. Department of Agriculture's Cooperative State Research, Education, and Extension Service (USDA/CSREES) has released the latest edition of its *Partners* video magazine, titled "Fluid Planet."

"Fluid Planet" is a four-segment series featuring land-grant university researchers studying water conservation. The Rio Grande Basin Initiative (RGBI) is highlighted in two segments: "Big River Part I" and "Big River Part II."

"The highlighted projects reflect only a small bit of the excellent work that has been accomplished through the RGBI," said Craig Runyan, Water Quality and RGBI program coordinator for New Mexico State University. Runyan worked with CSREES personnel to contact New Mexico and Texas RGBI project participants for the video footage.

Part I discusses the RGBI's focus on balancing demands for water and irrigation efficiency on farms and gardens. Part II details ways researchers in New

Mexico are studying new and old irrigation systems using the Rio Grande, including state of the art drip lines and ancient acequia canals.

"Obvious time limitations required that only a few be selected," Runyan said. "Our thanks to the faculty, staff, and cooperators that contributed their time to helping produce an outstanding video describing the RGBI project."

Partners is an award-winning video magazine produced by CSREES. It highlights the programs and accomplishments of the partnership between CSREES and the Land Grant University System in areas of research, education, and extension.

The *Partners* video can be viewed at:
<http://www.csrees.usda.gov/newsroom/partners/partners.html>.

RGBI Conference News

The Annual Rio Grande Basin Initiative Conference has been rescheduled for **August 10-13, 2009**, in McAllen, Texas at the Embassy Suites Hotel.

The agenda, registration, hotel and other information can be found on the conference Web site at
<http://riogrande-conference.tamu.edu/>.

2009 Accomplishment Report

The 2009 Progress and Accomplishment Report is published. Hard copies will be handed out at the annual conference or e-mail dmsupercinski@ag.tamu.edu to request a hard copy. The report can also be found electronically at
<http://riogrande.tamu.edu/resources.php>.

Flip the Switch, Stop the Drip

Workshops provide valuable information to homeowners

By Danielle Supercinski



A mock-up of a rainwater harvesting system was displayed at the Uvalde workshop by Nueces River Authority. This system simulates rainfall so participants can visually see the rainwater being captured.

Texas AgriLife Extension Service county agents and specialists worked together through the Rio Grande Basin Initiative to host three energy and water conservation workshops for homeowners held in Ft. Stockton, Uvalde and Weslaco during March, April and June 2009 with 150 participants.

and faucet aerator, along with fact sheets, booklets and additional water- and energy-saving information.

“Water is inexpensive and is being misused,” said Janie Harris, Texas AgriLife Extension Service housing specialist in family and consumer sciences. “Families can change a few behaviors and install water saving devices in their older homes and realize about a 20 percent savings in water use, Harris said. Over a year’s time, this dollar savings adds up.”

Some workshop presentation topics included:

- Tips on Reducing Energy in the Home
- Changing Water Use in the Home
- Water Wise Landscaping
- How to Harvest the Rain

Speakers at the various workshops included:

- Janie Harris, Extension Housing and Environment Specialist
In-home water conservation and energy conservation
- Barbara Storz, County Extension Agent-Horticulture, Hidalgo County
Landscape water conservation
- Billy Kniffen and John Smith, Extension Program Specialists-Water Resources
Rainwater harvesting

The three workshops, “Flip the Switch, Stop the Drip – Conserving Energy and Water, It’s Worth the Trip,” brought in homeowners from each of the surrounding areas. Each participant received an in-home water conservation kit, which included a water-conserving shower head, spray nozzle, energy-saving light bulb



Numerous Texas AgriLife Extension Service county agents and specialists were involved in planning and conducting these workshops. A few pictured at the Weslaco workshop are (far left) Lilian Mezquida, CEA-FCS for Cameron County; Adelita Muñoz, CEA-FCS for Hidalgo County; Janie Harris, Extension Specialist; and Yolanda Morado, CEA-FCS-Starr County. (Center) Dr. Enrique Perez, CEA-ANR, Cameron County and Ronnie Zamora, CEA-ANR (CEP). (Far right) A faucet aerator and water conserving shower head were given out to participants in their in-home water conservation kit.



Representatives from Dimmit and Maverick counties demonstrate water runoff to homeowners at the workshop. Participants could see how contaminated water from their household, industries and other sources effects their groundwater and surface water resources.

- Abigail Pritchard, County Extension Agent- Family Consumer Sciences, Ward County
In-home water conservation

Displays and handout materials were available for participants. A mock-up of a rainwater harvesting display was set up by Nueces River Authority, which had a small version of a barn with a water catchment system. Water was sprinkled on top of the barn and participants could see the water flowing down the roof, into the gutters, through the pipes and into the rain collection tank. Another demonstration showed the effects of runoff and how contaminated water from lawns, roadways and parking lots can travel down the sewer drains and hills into lakes, streams and groundwater.

Numerous county Extension agents and specialists in each of these and surrounding areas were involved in the planning and facilitation of these workshops.

For related articles, visit:

<http://agnews.tamu.edu/showstory.php?id=1235>

RGBI Briefs

Soil testing program receives award

Members of the Rio Grande Valley Nutrient Management Education project recently received the Texas Environmental Excellence Award (TEEA) in Agriculture for their soil testing campaign in the Rio Grande Valley. The team includes: Dr. Mark McFarland, Dennis Coker, Brad Cowan, Omar Motemayor, Dr. Enrique Perez and Dr. Tony Provin. This project is funded in part by RGBI.

RGBI funding update

The RGBI plan of work and other necessary paperwork was submitted to CSREES as part of the RGBI proposal process. We expect a response back mid-June with allocations following close behind.



Native landscaping demonstration at the South Texas College Mid-Valley Campus in Weslaco.

Photos courtesy of Ruben Saldana and Danielle Supercinski



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

Through education and research efforts, Texas AgriLife Research and the Texas AgriLife Extension Service and counterparts at New Mexico State University Agricultural Experiment Station and Cooperative Extension Service are implementing strategies for meeting present and future water demands 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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