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AGENDA ITEM MEMO

BOARD MEETING DATE: August 15, 2024

TO: Board Members

THROUGH: Bryan McMath, Interim Executive Administrator
Ashley Harden, General Counsel
Rebecca Trevino, Chief Financial Officer
John T. Dupnik, P.G., Deputy Executive Administrator, Water Science & Conservation

FROM: Antonio Delgado, Manager, Agricultural Water Conservation
Erika Mancha, Director, Conservation and Innovative Water Technologies

SUBJECT: Fiscal Year 2024 Agricultural Water Conservation Grants

ACTION REQUESTED

Consider authorizing the Executive Administrator to execute contracts for Fiscal Year 2024 Agricultural Water Conservation Grants.

BACKGROUND

The Texas Water Development Board's (TWDB) Agricultural Water Conservation Grants Program annually offers grant funding to state agencies and political subdivisions for activities that promote water conservation in the state. Grant topics vary from year to year to address current issues in agricultural water conservation and to support water management strategies in the 2022 State Water Plan.

On January 18, 2024, the Board authorized the Executive Administrator to publish a request for applications for Fiscal Year 2024 Agricultural Water Conservation Grants, with up to \$1.5 million in funding available for projects that achieve one or more of the following goals:

- A. Improve irrigation efficiency through irrigation system improvements
- B. Enhance resilience to weather extremes and climate variability
- C. Promote innovation in agriculture by incorporating the latest water conservation technological advancements

Projects should incorporate as many of the following actions and objectives as possible to illustrate how the project will achieve the aforementioned goals:

Our Mission
Leading the state's efforts in
ensuring a secure water future
for Texas and its citizens

Board Members

Brooke T. Paup, Chairwoman | L'Oreal Stepney, P.E., Board Member
Bryan McMath, Interim Executive Administrator

- Quantify actualized water savings with proven methodology and provide baseline water usage prior to project implementation.
- Engage agricultural producers and water managers through educational outreach in the form of field days, workshops, seminars, and demonstrations in classroom settings and on farms involved in the projects.
- Promote the adoption of innovative water conservation practices and technologies that result in improvements to irrigation efficiency and soil health.
- Identify methods to measure and report water conservation performance metrics such as water savings, soil water holding capacity, and infiltration.
- Determine the long-term sustainability, feasibility, and profitability of the conservation practice(s) by quantifying the return on investment.
- Build upon the success of existing water conservation efforts.
- Leverage funding support from local, state, federal, and private industry partners.

KEY ISSUES

The request for applications was published in the *Texas Register* on the TWDB website. Fifteen applications were received in response to the solicitation, with applicants requesting a total of \$2,834,489 in grant funding assistance. A technical review panel reviewed and ranked the applications according to the rules contained in 31 Texas Administrative Code Chapter 367. Table 1 shows the top ranked applicants, amounts requested, and grant funding recommendations. Additional information on all applications received may be found in Attachment 1, along with a summary of the projects in Attachment 2.

Table 1. Top ranked applications received and TWDB funding recommendations.

Entity	Amount requested	Funding recommendation
Mesquite Groundwater Conservation District	\$50,000	\$50,000
North Plains Groundwater Conservation District	\$200,000	\$200,000
Post Oak Savannah Groundwater Conservation District	\$30,000	\$30,000
Rolling Plains Groundwater Conservation District	\$250,000	\$250,000
Texas A&M University – Kingsville	\$256,619	\$256,619
Texas A&M AgriLife Research	\$250,000	\$250,000
Texas A&M AgriLife Research	\$194,337	\$194,337
Texas Tech University	\$250,000	\$250,000
Total	\$1,480,956	\$1,480,956

RECOMMENDATION

The Executive Administrator recommends approval of this item, as the projects will further water conservation in the state by supporting the implementation of irrigation conservation water management strategies in the 2022 State Water Plan.

Attachments

1. List of all applications
2. Summaries of recommended projects

Attachment 1: List of all applications

Entity	Project	Local match	Grant request	Total cost
Mesquite GCD	Irrigation metering Equipment	\$50,000	\$50,000	\$100,000
North Plains GCD	Irrigation Metering Equipment	\$200,000	\$200,000	\$400,000
Post Oak Savannah GCD	Irrigation Metering Equipment	\$30,000	\$30,000	\$60,000
Rolling Plains GCD	Managed Aquifer Recharge	\$2,220,500	\$250,000	\$2,470,500
Sul Ross State University – Borderlands Research Institute	Chihuahuan Desert Grasslands Restoration	\$339,800	\$250,000	\$589,800
Texas A&M University – Kingsville	Soil Water Dynamics	\$252,000	\$256,619	\$508,619
Texas A&M University – Kingsville	South Texas Citrus Groves	\$0	\$249,916	\$249,916
Texas A&M University – AgriLife Extension Service	Enhancing Water Conservation Tools and Precision Viticulture Practices	\$0	\$199,655	\$199,655
Texas A&M AgriLife Research – Sponsored Research Services	Agricultural Water Use Efficiency in El Paso County	\$0	\$250,000	\$250,000
Texas A&M AgriLife Research – Sponsored Research Services	Optimizing Irrigation Scheduling for Sustainable Water Management in Onions	\$0	\$150,407	\$150,407
Texas A&M AgriLife Research – Sponsored Research Services	Water Conservation Strategies for Producing Specialty Crops in the Lower Rio Grande Valley	\$0	\$194,337	\$194,337
Texas A&M AgriLife Research – Sponsored Research Services	Water Conservation Potential of Automatic Milking Technologies in Dairy Farms	\$0	\$278,013	\$278,013
Texas State University	Soil Conservation Practices on Soil Water Availability in Irrigated Pecan Orchards	\$77,375	\$180,542	\$257,917
Texas Tech University	Agricultural Water Sustainability Summit	\$81,513	\$45,000	\$126,513
Texas Tech University	Assess New Irrigation Technology and Texas Alliance Water Conservation Tools to Strengthen Water Conservation Efforts in Southern Texas High Plains	\$54,511	\$250,000	\$304,511
Total		\$3,305,699	\$2,834,489	\$6,140,188

Notes: GCD – groundwater conservation district

Attachment 2: Summaries of recommended projects

Mesquite Groundwater Conservation District

Irrigation Metering Equipment Project

TWDB amount requested	\$50,000.00
Local cash or in-kind	\$50,000.00
Total project cost	\$100,000.00
Estimated water savings	800 acre-feet annually

This project is recommended for TWDB grant funding, in an amount not to exceed \$50,000. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Mesquite Groundwater Conservation District and agricultural producers.

Project area:

The project would occur within the boundaries of the District in the Panhandle Regional Water Planning Area (Region A) and the Llano Estacado Regional Water Planning Area (Region O).

Project summary:

Proposed cost share ratio of 50/50 to allow for the reimbursement of approximately 100 meter installations. The District has all personnel, hardware, and software to administer this program; no direct costs to the grant will come from the District. Meters will be purchased and installed by producers utilizing their private funds no later than June 30, 2027 (or as specified in the contract). This project has an estimated water savings of 10 percent, equaling approximately 800 acre-feet annually.

This project supports the implementation of irrigation conservation water management strategies in the 2022 State Water Plan and the District's management plan and desired future conditions. If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):

This project would involve a three-year installation period followed by five years of reporting irrigation water use data and water savings information.

Attachment 2: Summaries of recommended projects

North Plains Groundwater Conservation District

Irrigation Metering Equipment Project

TWDB amount requested	\$200,000.00
Local cash or in-kind	\$200,000.00
Total project cost	\$400,000.00
Estimated water savings	To be determined

This project is recommended for TWDB grant funding, in an amount not to exceed \$200,000. The actual local match and total project amount will be determined during contract negotiations.

Participants:

North Plains Groundwater Conservation District and agricultural producers.

Project area:

The project would occur within the boundaries of the District in the northern Texas Panhandle encompassing Dallam, Hansford, Lipscomb, Ochiltree, and Sherman, Hartley, Hutchinson, and Moore counties.

Project summary:

Current District rules (Rule 3.2A, Rule 3.5E) require all wells drilled after 2003 to be metered and all wells to be metered on a property where a new well is drilled, regardless of when the other wells on the property were drilled. These rules increase the number of metered wells annually. The TWDB is invited to partner in the District's metering program by cost sharing an additional 200 new meters over the next three years at an estimated cost of \$400,000 with expected water savings to be determined.

This project supports the implementation of irrigation conservation water management strategies in the 2022 State Water Plan, the North Plains Groundwater Conservation District Rule 3.5E, effective in January 2013, and the 2021 Region A Water Plan Section 5B.2.1 Irrigation Scheduling. If funded, the project would serve the public interest and further water conservation in the state. TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):

The project would involve an estimated three-year installation period, followed by five years of reporting irrigation water use data and water savings information.

Attachment 2: Summaries of recommended projects

Post Oak Savannah Groundwater Conservation District

Irrigation Metering Equipment Project

TWDB amount requested	\$30,000.00
Local cash or in-kind	\$30,000.00
Total project cost	\$60,000.00
Estimated water savings	10 percent annually

This project is recommended for TWDB grant funding, in an amount not to exceed \$30,000. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Post Oak Savannah Groundwater Conservation District and agricultural producers.

Project area:

The project would occur within the boundaries of the District which consists of all of Milam and Burleson counties. This project will focus on the wells developed in the Little River Alluvium and Brazos River Alluvium.

Project summary:

The Agricultural Production Metering: One-Year Irrigation Flow Meter Cost-Share Reimbursement Program plans to purchase approximately thirty well meters to be installed throughout the District on a first come first served basis to monitor production of groundwater in the project area while promoting conservation. The District's rules currently require irrigators to report water usage, but do not require the installation of flow meters. This project has an estimated water savings of 10 percent annually on meter equipped wells.

This project supports the implementation of irrigation conservation water management strategies in the 2022 State Water Plan, the Brazos Region G Water Plan, and groundwater management within the District. If funded, the project would serve the public interest and further water conservation in the state. TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):

The project would involve an estimated one-year installation period, followed by five years of reporting irrigation water use data and water savings information.

Attachment 2: Summaries of recommended projects

Rolling Plains Groundwater Conservation District

Managed Aquifer Recharge Project

TWDB amount requested	\$250,000.00
Local cash or in-kind	\$2,220,500.00
Total project cost	\$2,470,500.00
Estimated water savings	To be determined

This project is recommended for TWDB grant funding, in an amount not to exceed \$250,000. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Rolling Plains Groundwater Conservation District.

Project area:

This project would occur within the boundaries of the District in the Region B Regional Water Planning Area and the Brazos G Regional Water Planning Area.

Project summary:

Rolling Plains Groundwater Conservation District has proposed building an aquifer recharge basin for the purposes of collecting stormwater surface runoff to recharge the Seymour Aquifer. The aquifer recharge concept plan considers a multi-phase facility to naturally capture, mitigate stormwater, treat, and inject stormwater runoff into the aquifer with estimated water uses primarily for irrigation and municipal needs. Estimated water savings are to be determined.

This project supports the implementation of irrigation conservation water management strategies in the 2022 State Water Plan and the District's water plan concerning Irrigation Conservation - Demand Reduction Strategy. If funded, the project would serve the public interest and further water conservation in the state. TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):

The project would involve a one-year installation period followed by five years of reporting irrigation water use data and water savings information.

Attachment 2: Summaries of recommended projects

Soil Water Dynamics Project

TWDB amount requested	\$256,619.00
Local cash or in-kind	\$252,000.00
Total project cost	\$508,619.00
Estimated water savings	To be determined

This project is recommended for TWDB grant funding, in an amount not to exceed \$256,619. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Texas A&M University-Kingsville (TAMUK) and Prukop Farms ownership.

Project area:

The proposed project will be conducted at TAMUK University Farm and on Prukop Farm in Premont, Texas.

Project summary:

The project experiments will be conducted using cover crop mixtures, no-till, conventional till, and deep till practices integrated to increase plant available soil water during production. A system model will be used to calculate soil water yield and the effectiveness of this farming approach. Demonstrations and trainings will be organized for experimental and experiential learning outcomes for agricultural stakeholders and students. Projected annual water savings are to be determined.

This project supports the implementation of irrigation conservation water management strategies in the 2022 State Water Plan and the Coastal Bend Regional Water Planning Area (Region N). If funded, the project would serve the public interest and further water conservation in the state. TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if

funded): This project would involve a three-year research and demonstration period followed by a three-year reporting and outreach period.

Attachment 2: Summaries of recommended projects

Agricultural Water Use Efficiency – El Paso County Project

TWDB amount requested	\$250,000
Local cash or in-kind	\$0
Total project cost	\$250,000
Estimated water savings	To be determined

This project is recommended for TWDB grant funding in an amount not to exceed \$250,000. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Texas A&M AgriLife Research.

Project area:

This project would occur at one cooperating farm within the Far West Texas Regional Water Planning Area (Region E).

Project summary:

This project, through design and installation of irrigation systems and sensors, will demonstrate and compare the most water-saving sub-surface drip irrigation practice to the conventional flood irrigation practice in cotton and pecan crop fields of El Paso County. Their comparison in terms of water use, crop yields, fertilizer use, and field management practices will help inform farmers on effective arid agriculture irrigation practices and promote water conservation through adoption of drip irrigation. Irrigation water, heavy equipment activity, and fertilizer application will be measured and monitored throughout the seasons during the project period in the drip-irrigated fields and comparable flood-irrigated fields.

This project supports the implementation of irrigation conservation water management strategies in the 2022 State Water Plan and the 2021 Far West Texas Regional Water Plan (Region E). If funded, the project would serve the public interest and further water conservation in the state. TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):

The project would involve a three-year research and demonstration period followed by a three-year reporting period.

Attachment 2: Summaries of recommended projects

Water Conservation Strategies for Producing Specialty Crops in the Lower Rio Grande Valley Project

TWDB amount requested	\$194,337
Local cash or in-kind	\$0
Total project cost	\$194,337
Estimated water savings	To be determined

This project is recommended for TWDB grant funding in an amount not to exceed \$194,337. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Texas A&M AgriLife Research.

Project area:

This project would occur in the Lower Rio Grande Valley within the counties of Starr, Hidalgo, Cameron, and Willacy in the Rio Grande Regional Water Planning Area (Region M).

Project summary:

The project will evaluate the effectiveness of varying irrigation levels on both plastic mulching in reducing water loss and the application of biostimulants in mitigating the impact of water stress on crops. With watermelons as a focal crop, this study will demonstrate how deficit irrigation, plastic mulching, and biostimulants can significantly reduce water consumption while maintaining crop yield and quality. This integrative approach seeks to optimize agricultural water management by conserving more than 45 percent of water compared to traditional surface irrigation. It also pioneers advancements in agricultural resilience and innovation, addressing the pressing challenges of enhancing resilience to weather extremes and climate variability in the Lower Rio Grande Valley of Texas.

This project supports the implementation of irrigation conservation water management strategies in the 2022 State Water Plan and the 2021 Rio Grande Regional Water Plan (Region M). If funded, the project would serve the public interest and further water conservation in the state. TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):

The project would involve a two-year research and demonstration period followed by a three-year reporting period.

Attachment 2: Summaries of recommended projects

Assess New Irrigation Technology and Revive Texas Alliance Water Conservation Tools to Strengthen Water Conservation Efforts in Southern Texas High Plains - Phase II Project

TWDB amount requested	\$250,000
Local cash or in-kind	\$54,511
Total project cost	\$304,511
Estimated water savings	To be determined

This project is recommended for TWDB grant funding in an amount not to exceed \$250,000. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Texas Tech University.

Project area:

This project would occur at Texas Alliance Water Conservation (TAWC) cooperating farms across nine Texas High Plains counties in the Llano Estacado Regional Water Planning Area (Region O).

Project summary:

The project will continue demonstrations of new sensor-based irrigation management technologies on producer fields to assess their agronomic and economic viability. Quantifying impact of these practices on soil water balance and crop production systems requires a multi-year assessment, therefore, this additional year of replication will lead to more robust and reliable results, enabling producers to make informed decisions about adopting different practices and sensor technologies to make better irrigation decisions.

This project supports the implementation of irrigation conservation water management strategies in the 2022 State Water Plan and the 2021 Llano Estacado Regional Water Plan (Region O). If funded, the project would serve the public interest and further water conservation in the state. TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):

The project would involve a one-year research and demonstration period followed by a three-year reporting period.