

Water Supply Reserve Account – Grant and Loan Program
Water Activity Summary Sheet
November 19-20, 2014
Agenda Item 11(d)

Applicant & Program Sponsor: Rio Grande Watershed Conservation & Education Initiative (RGWCEI)

Water Activity Name: Increasing the Water Holding Capacity of Soil for Agriculture Sustainability in the San Luis Valley

Water Activity Purpose: Agricultural/Education/Implementation

County: Alamosa, Conejos, Costilla, Rio Grande, and Saguache

Drainage Basin: Rio Grande

Water Source: Unconfined Aquifer of the Closed Basin and San Luis Valley

Total Amount Requested: \$98,200

Source of Funds: Rio Grande Basin Account

Matching Funds: Applicant & 3rd Party cash & in-kind match (\$5,304,964) = 98.2% of total project costs (\$5,403,164)
(refer to *Funding Summary/Matching Funds*)

Staff Recommendation
Staff recommends approval of up to \$98,200 from the Rio Grande Basin Account to help fund the project titled: Increasing the Water Holding Capacity of Soil for Agriculture Sustainability in the San Luis Valley.

Water Activity Summary: WSRA funds will be expended to conduct a study that will investigate the outcomes of a “biotic” farming project. Biotic farming is defined as an approach that treats the farm as an ecosystem unto itself, mimicking nature as much as possible in the design and management of the farm, keeping as much of the soil food web intact as possible, and taking care of the soil as though it is a living organism. Desired outcomes include: reducing water use by 30-60%; maintaining, or increasing pack out rates; increasing product quality; maintaining, or increasing profitability.

The process begins by establishing a baseline biological profile by gathering soil samples that utilize a variety of testing methodologies to measure the Total Biomass Populations in general categories. The next step is to define a nutrient management plan that will include processed compost applications and a set of biological amendments. The final step will be to develop a crop rotation plan for the three year life of the investigation. Soil types will also be noted and a comprehensive irrigation management program will be implemented. The crop will be monitored throughout the growing season. All amendment applications, water applications (including rain), and tilling passes will be documented. At the end of each growing season tests will be retaken and a portfolio will be developed for each amendment applications, water applications, and tilling efforts.

The purpose of this project is to demonstrate the following:

- Increases in irrigation efficiencies by increasing the soils water holding capacity.
- Increased soil tilth.
- Promoting water quality by reducing fertilizer, herbicide, and pesticide inputs
- Increased crop quality and pack out rate reducing amount of land in production.
- Introduces practices and procedures to meet future water need

By addressing the following questions:

- How long will it take to improve soil health through the use of biologic methods?
- Will biotic system changes increase pack out rates, and if so, can productive land with increased pack out rates be reduced, thus preserving water?
- How long does field rebound from conventional chemical management take and what are the overall water savings through a 2-3 year crop rotation?

Discussion:

No additional discussion is required.

Issues/Additional Needs:

No issues or additional needs have been identified.

Threshold and Evaluation Criteria:

The application meets all four Threshold Criteria

Tier 1-3 Evaluation Criteria:

n/a

Funding Summary/Matching Funds:

	<u>Cash</u>	<u>In-kind</u>	<u>Total</u>
WSRA Rio Grande Basin Account	\$98,200	n/a	\$98,200
Participating Landowners	\$5,176,364	\$0	\$5,176,364
NRCS	\$0	\$31,200	\$31,200
Soil Guys	\$0	\$2,500	\$2,500
CSU Graduate Students	\$0	\$4,100	\$4,100
RGWCEI	<u>\$0</u>	<u>\$90,800</u>	<u>\$90,800</u>
Total Project Costs	\$5,274,564	\$128,600	\$5,403,164

All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and will help promote the development of a common technical platform.

In accordance with the revised WSRA Criteria and Guidelines, staff would like to highlight additional reporting and final deliverable requirements. The specific requirements are provided below.

Reporting: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the scope of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report may contain photographs, summaries of meetings and engineering reports/designs.

Engineering: All engineering work (as defined in the Engineers Practice Act (§12-25-102(10) C.R.S.)) performed under this grant shall be performed by or under the responsible charge of professional engineer licensed by the State of Colorado to practice Engineering.