Alternative Agricultural Water Transfer Methods – Competitive Grant Program
Water Activity Summary Sheet
Agenda Item 30.b.

Applicant: Colorado State University

Water Activity Name: Implementation of Deficit Irrigation Regimes: Demonstration and Outreach

Water Activity Purpose: Structural Activity/demonstration

Drainage Basin: South Platte

Water Source: South Platte

Amount Requested: $124,734

Matching Funds: $20,000 (cash)

Staff Recommendation
Staff recommends approval of up to $100,000 from the Alternative Agricultural Water Transfer Methods Program to help fund the "Implementation of Deficit Irrigation Regimes: Demonstration and Outreach" project contingent upon resolution of the items in the issues/additional needs section of this summary.

Water Activity Summary:
This project seeks to demonstrate the feasibility of different methods of deficit irrigation. The applicant believes that transferring technology and educating water users and regulators is an important step in the adoption of deficit irrigation as a viable ATM.

The specific goals of the proposed demonstration and outreach project are:

- To demonstrate the feasibility (technical and economic) and resource-requirement of using selected water management techniques to quantify the water balance components and consumptive use under different deficit irrigation levels, on crops such as corn and sunflower, on clayey to sandy soil types, with pressurized and surface irrigation methods, and under different agronomic practices. Technical feasibility involves a practical, cost-effective monitoring approach and economic feasibility involves understanding and demonstrating crop water productivity, production costs and farmer incentives. Numerous sensors and their related equipment (e.g., infra-red thermometers, dataloggers, neutron probe, multispectral scanner, etc.) required to achieve this goal will be provided by CSU.
- To educate and train water users and regulators about using these techniques and their advantages and disadvantages (including limitations) through a variety of outreach and extension activities, such as publishing online and printed manuals including user-friendly spreadsheets, fact sheets, newsletters, and magazine articles; holding field days and a training workshop (video recordings to be made available online); and, creating a YouTube channel to upload short informational video clips.

This project will build upon the results of previous studies to demonstrate, transfer technology and educate on how some of the most promising techniques can be used, with minimal instrumentation, to document water balance components under deficit irrigation regimes.

Discussion:
Through the ATM program, the CWCB has been extremely supportive of efforts to investigate deficit irrigation techniques. To date, the CWCB has awarded CSU nearly $800,000 towards this effort. While deficit irrigation does show promise as a viable ATM, it is definitely one of the more complex methods being explored. This is due to the water rights administration issues (i.e. verification of actual water use) and higher farm management costs associated with deficit irrigation.

Issues/Additional Needs:
The budget appears to be relatively broad and needs more specificity. Prior to contracting, staff would like a detailed budget indicating how the costs in Task 1 (Demonstration) and Task 2 (Outreach) are justified.

Considering the nearly $800,000 contributed toward the study and analysis of deficit irrigation in the South Platte basin, staff recommends that the Board approve a reduced amount of funding of $100,000 contingent upon the applicant securing additional commitment ($34,734) from the partners identified within 6 months of Board approval. In addition, letters of commitment from the partners is requested.

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 Criteria and Guidelines of the Alternative Agricultural Water Transfer Methods Competitive Grant Program, 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.