

TITLE: Applying Ogallala Aquifer Program outcomes to improve technical standards and continuing education for technical audiences

INVESTIGATORS:

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Cooperators: USDA-NRCS engineering and other professional staff

SUMMARY

This collaborative technology transfer effort will address identified needs of technical audiences, with the ultimate goal of expanding adoption of appropriate efficient irrigation and water conservation technologies and management strategies. This will be achieved through leveraging of high quality applied research to address practical technical and policy needs. A significant anticipated benefit of the work will be improved (updated) technical standards to expand applicability of water conservation programs and to promote adoption of efficient water management strategies. This project also will increase continuing education opportunities for irrigation, agricultural, and natural resources conservation professionals, and help to clarify terminology for consistent messages and improved communications with stakeholders.

PROJECT NARRATIVE

Objectives: The overall goal of this proposed work is to increase proficient application of appropriate water conservation technologies and management strategies in production agriculture. Objectives to meet this goal include:

- 1) Interpret results and developments of USDA-ARS Ogallala Aquifer Program sponsored applied research into recommendations that can be used to support inclusion of these developments into technical standards and recommendations (including practices and standards of the ASABE (2014) and USDA-NRCS (2012; 2014) as applicable);
- 2) Develop educational materials and opportunities to support technology transfer to USDA-NRCS audiences (USDA-NRCS field staff, Technical Service Providers, and stakeholders) and other technical audiences (Certified Irrigation Designers and Certified Agricultural Irrigation Specialists);
- 3) Expand effective collaborations and communications between USDA-ARS Ogallala Aquifer Program research programs (universities and USDA-ARS) and USDA-NRCS to better serve stakeholders.

Rationale and Conceptual Framework:

The relatively high rate of adoption of efficient advanced irrigation technologies has been attributed to a combination of water-limited production conditions (motivating producers and supporting economic feasibility of the technologies); progressive producers (willing to try new technologies); excellent local/regional irrigation research programs (ensuring applicability of technologies and recommendations to local conditions); experienced irrigation industry representatives; and USDA-NRCS EQIP and other cost-share programs (making technology investments more affordable).

Cost-share programs supported by USDA-NRCS, groundwater conservation districts and other agencies depend upon quality, objective, research-based information to justify recommending technologies and practices. Yet, there are challenges associated with an apparent time “lag” between technology development and inclusion of technologies into programs. Concern about reliability of industry (sales) claims and stakeholder concern about motivations of regulatory agencies amplifies the importance of involvement of objective information sources. Finally, apparent inconsistencies in terminology and recommendations can contribute to confusion among stakeholders.

Applied agricultural research programs, including those supported in part by the USDA-ARS Ogallala Aquifer Program, have generated valuable information that can be used to improve applications of appropriate irrigation technologies, irrigation management, and other water conservation practices. Land Grant University research and extension programs, USDA-ARS research programs, and USDA-NRCS offer reputable and objective expertise, as well as working relationships with agricultural producers, commodity leaders, regulatory personnel, and industry representatives. Members of this project team are actively engaged in development and support of technology standards (including the American Society of Agricultural and Biological Engineers standards). Hence this collaborative team is well suited to address the technology considerations and the field-based applications of the resources to be addressed in this project.

How the Objectives Will Be Met: The research team will work with USDA-NRCS staff to review existing USDA-NRCS Conservation Practice Standards (USDA-NRCS, 2014) and related materials that describe USDA-NRCS cost-share eligible technologies and practices. The team will seek input from NRCS staff regarding information gaps and perceived “roadblocks” to adoption of appropriate water conservation technologies and practices, and identify research reports, publications, and other products from reputable sources (including USDA-ARS-OAP research) that can help to fill these knowledge gaps and hopefully justify inclusion of technologies in USDA-NRCS programs.

Additional resources will be consulted and used as appropriate to strengthen justification of strategies, and to ensure consistent messages to stakeholders. Some examples of information sources include Engineering Standards and Engineering Practices, as well as manuals and articles published by the American Society of Agricultural and Biological Engineers, American Society of Civil Engineers

Environmental and Water Resources Institute, The Irrigation Association, and Land Grant Universities (research and extension).

Technical recommendations for water conservation practices (irrigation technologies and management, agronomic practices, and other proven strategies) will be made available to USDA-NRCS field staff, Technical Service Providers, irrigation and other agricultural technical professionals, and farm-level decision makers (landowners, agricultural producers) through Internet-available publications and presentations, educational events (workshops, conferences), mass media, and other venues. Technical levels of materials and events will match target audience needs.

Proposed educational venues include: USDA-NRCS training events for field staff, Technical Service Providers, and irrigation professionals; irrigation workshops and conferences, such as the High Plains Irrigation Conference (sponsored by Texas A&M AgriLife Extension Service and Texas Agricultural Irrigation Association) and the Central Plains Irrigation Association Conferences; specialty workshops targeting specific stakeholder groups (such as commodity organizations or Certified Crop Consultant conferences); and events for general audiences (such as extension conferences for agricultural producers).

Expected Outcomes:

Expected outcomes of this project include:

- Improved communication and standardization of terminology among participating agencies, resulting in clearer communication and improved understanding of technologies and practices among stakeholder audiences;
- Increased professional development / continuing education opportunities for technical audiences (including Technical Service Providers, Certified Crop Consultants, Certified Irrigation Designers and Certified Agricultural Irrigation Specialists, Professional Engineers); and
- Expanded and improved recommendations and standards to promote increased adoption of water conservation strategies.

Proposed deliverables include:

- Educational events targeting technical and non-technical audiences;
- White papers, fact sheets, and other documentation to support appropriate application of technologies and practices;
- Updated Conservation Practice Standards and/or supporting documents, as applicable.

RELEVANT PUBLICATIONS

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