PROJECT TITLE: Irrigation Efficiency Game Changer: Celebrating 40 Years of Center Pivot Irrigation Research and Technology Transfer

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IMPORTANCE OF TECHNOLOGY TRANSFER EFFORT: Low pressure center pivot sprinkler (CP) and lateral move sprinkler (LMS) irrigation systems have been widely adopted in the Ogallala Aquifer (Central and Southern High Plains) region, greatly improving achievable irrigation application efficiencies and crop water use efficiencies on a very large scale throughout the region. From early work on development of Low Energy Precision Application (LEPA) that began in 1978 and later Low Elevation Spray Application (LESA) irrigation and Mid Elevation Spray Application (MESA) to the integrated sensor/control systems mounted on CP and LMS systems, Ogallala Aquifer Program (OAP) affiliated projects have made important contributions to the advancement of low pressure sprinkler application systems. This project will support a large technology transfer effort beginning in 2017 and an increased effort in 2018 focused on the 40-year anniversary of LEPA and succeeding in-canopy technologies. The overall purpose of the project will be to promote adoption of advanced efficient irrigation technologies and recommended practices that will maximize benefits of these CP and LMS systems. It will highlight historic achievements that have greatly improved irrigated crop production while improving water applications and showcase promising emerging technologies associated with the "center pivot platform." The technology transfer effort also will facilitate collaboration of engineers and scientists to synthesize "what we know" into more accessible publications and media and provide a venue to brainstorm additional improvements to systems and technologies.

APPROACH: The project can be envisioned as occurring in two phases, 1) planning, document preparation and scientist-to-scientist exchanges in 2017, and 2) celebration of historical improvements, promotion of current technologies and illustration of future technologies in 2018 through public events and professional society technical sessions.

In Phase 1, PIs will develop summary publications suitable for distribution to irrigators and the general public highlighting the successes of the last 40 years, the current BMPs and a projection of future technologies. Planning for the 2018 public and professional scientific events will also take place. In addition a scientific retreat will be to brainstorm future cooperative sprinkler irrigation research and extension activities.

The second phase will be met through a series of at least two public field days to be held in Texas and Kansas that will provide an overview of the history of center pivot irrigation and associated research in the High Plains; updates on the state of the art in center pivot irrigation; and summaries of research accomplishments and ongoing research and extension efforts. The field days will include special presentations; posters and demonstrations; and "hands on" activities, as well as trailer/bus rides to research sites. Informal communication between researchers and audience members will be encouraged through site layout (traffic pattern) of the poster/exhibit area; refreshment breaks; and a noon meal. Additional smaller focused efforts will be added to other regularly scheduled general field days. In addition to the public events in 2018, the PIs will propose and coordinate technical sessions on sprinkler irrigation from the OAP at international meetings of appropriate professional societies (ASABE, ASA-SSSA-CSA, and IA).

Expected Outcome and Impact: Summary publications suitable for public distribution will be developed. The summarization process will also produce one or more technical reviews related to sprinkler irrigation. A number of proceeding papers will be developed for the professional society technical sessions. Expected outcomes will also include greater public awareness of OAP affiliated research programs; increased appreciation for the nature and level of collaboration among OAP affiliated researchers and institutions; better public understanding of the state of the art of agricultural irrigation; improved practitioner knowledge of technical subject matter; and improved awareness of information available for decision makers (producers, ag lenders, landowners, policy makers). It is anticipated that one value of the historical celebrations will be to illustrate the long term nature of research and extension efforts culminating in significant on-farm crop production improvements.

For periodic updates on the project and an upcoming calendar of events, **http://www.ksre.ksu.edu/irrigate/**