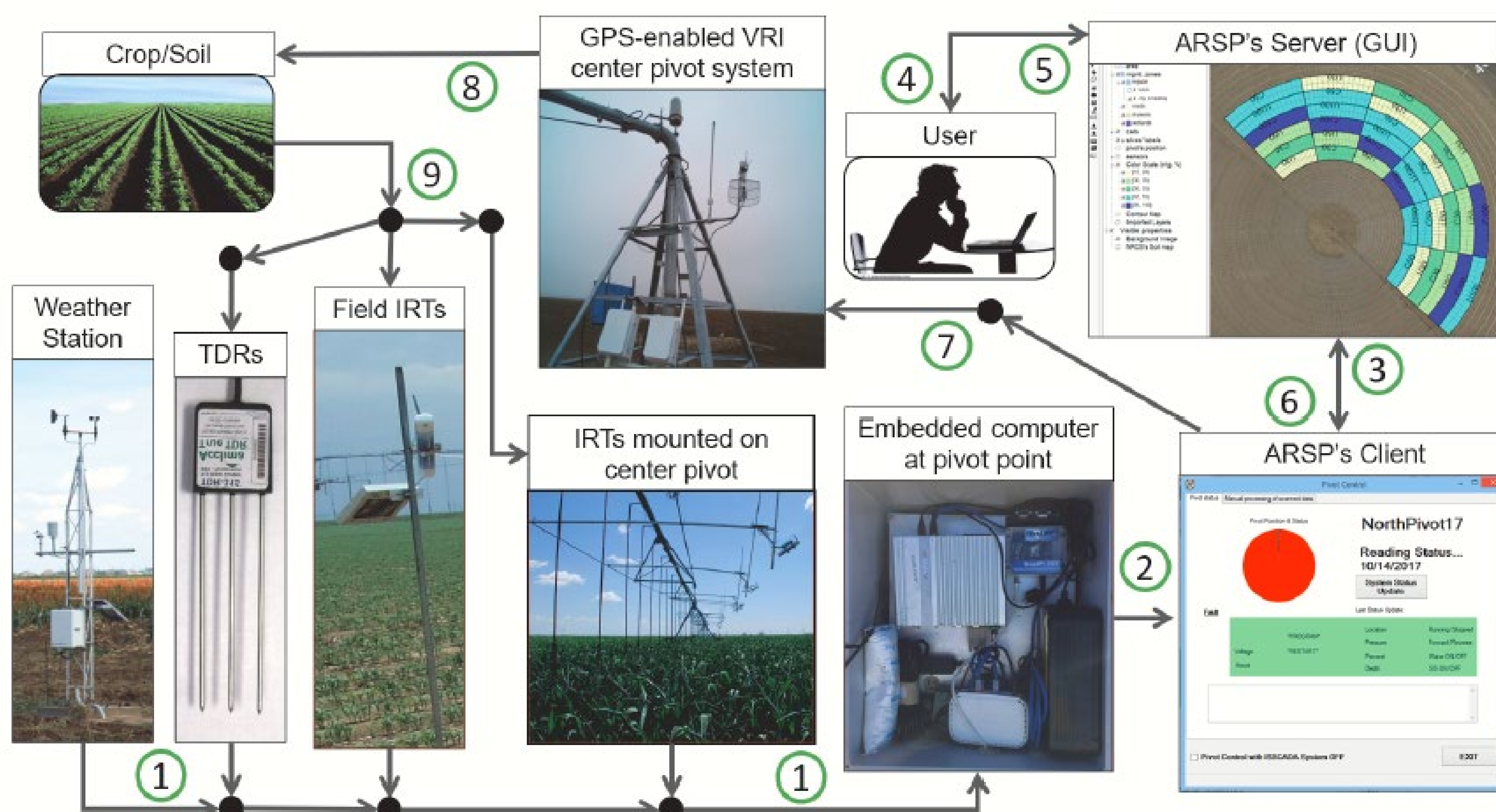
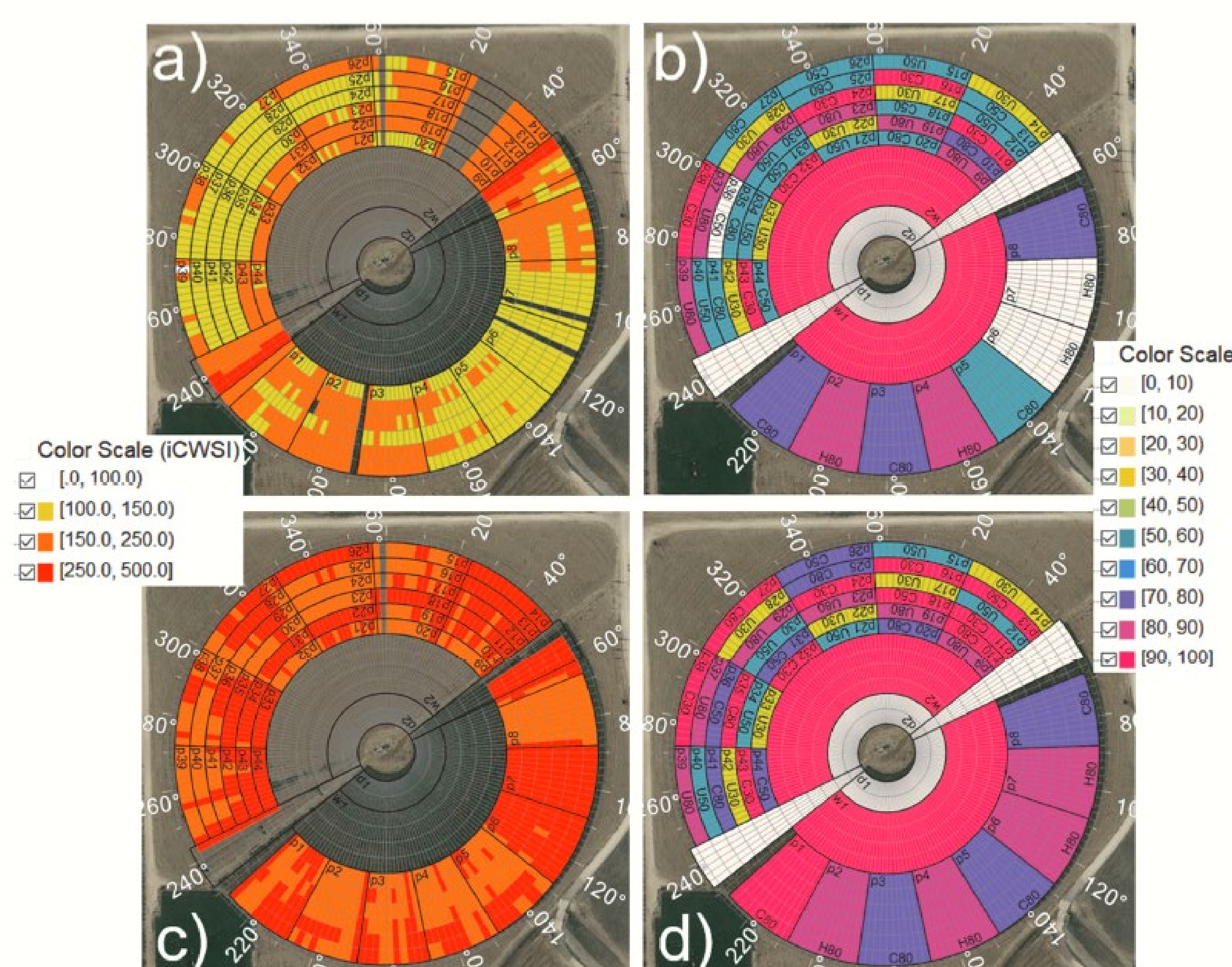


An Irrigation Scheduling Supervisory Control and Data Acquisition System (ISSCADA)- a Decision Support Tool for Center Pivot Irrigation Systems

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The ISSCADA system incorporates three wireless data streams- weather, canopy temperature and soil water content to generate prescription maps for irrigation management of crops (top diagram). The dynamic prescription maps provide spatio-temporal maps of crop stress at the field scale level and irrigation recommendations (bottom diagram).



Summary

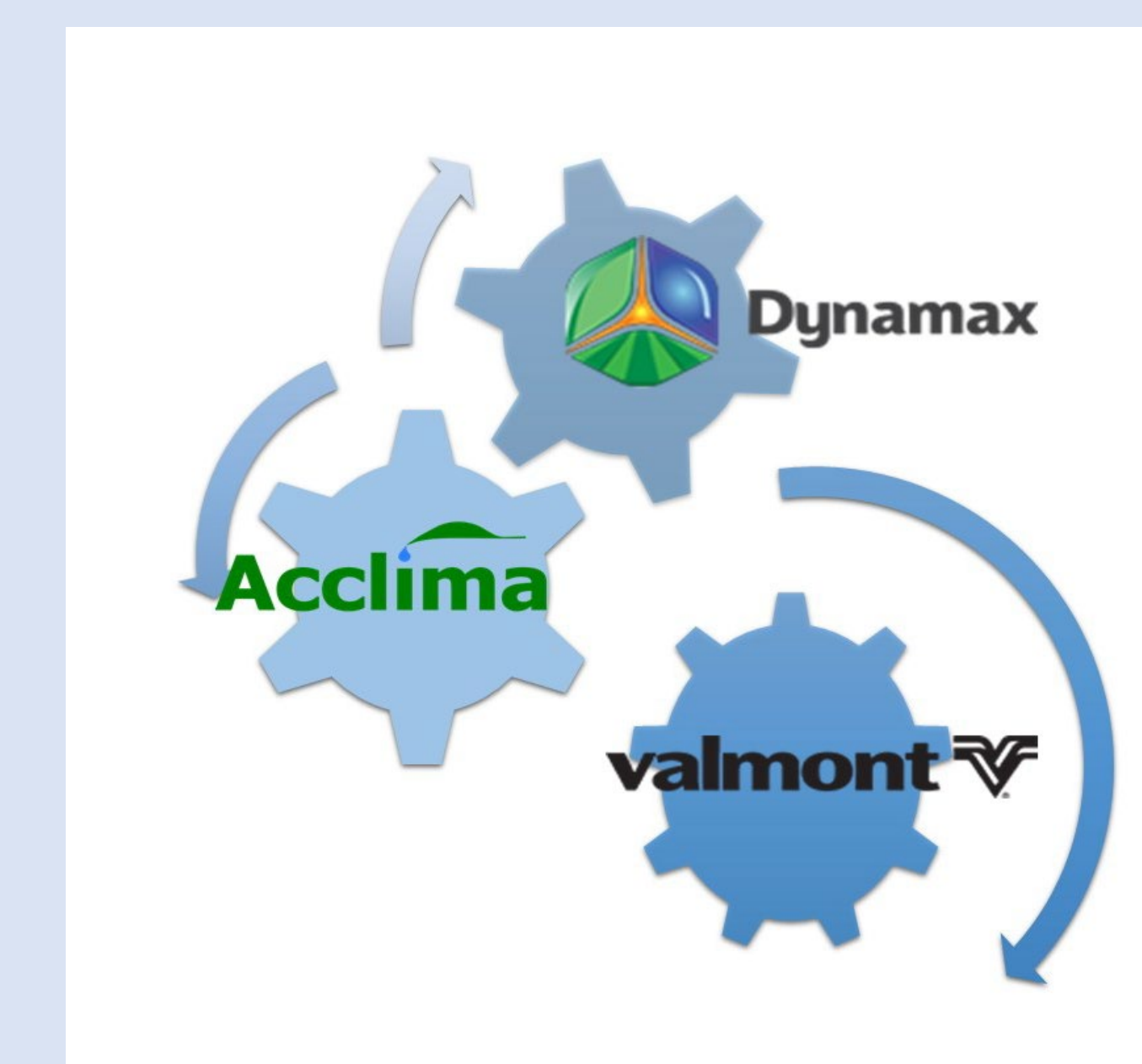
Irrigated agriculture is key to national food security and center pivot systems dominate the U.S. landscape. This autonomous technology enables producers to use sensor network systems to enable variable rate irrigation management decisions with center pivot systems to improve crop water productivity and nutrient use with reduced labor.

Highlights

- ISSCADA reduced water use and increased irrigation crop water productivity for soybean in Mississippi and cotton in Missouri.
- ISSCADA with soil water depletion feedback shows potential for improving irrigation management of corn in South Carolina and Texas.
- ISSCADA improves yield and crop water productivity with corn, cotton, sorghum, soybean.

Methods

- Teamwork within and between ARS labs - shared resources and expertise
- Leveraged Industry Partners' expertise- technology transfer, sensor integration, and system development



- Engaged Beta-test Partners across the nation - multi-location collaboration resulted in objective testing of system in different climates and soils, leading to feedback and system improvement
- Worked in alliance with our Office of Technology & Transfer to facilitate CRADAs, patents and licensing

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