Water Quantity Enhancement Activity – WQT01 – Irrigation system automation

Enhancement Description
This enhancement entails using GPS guided variable rate irrigation or other innovative technologies that allow irrigation water application based on variable site conditions within a field.

Land Use Applicability
Cropland, Pastureland

Benefits
The advantages of using variable rate irrigation or other innovative technologies to reduce water use and runoff from irrigation include conservation of water resources and energy conservation.

Conditions Where Enhancement Applies
This enhancement applies to only the irrigated acres in the crop or pasture land use.

Criteria
1. Implementation of this enhancement requires compliance with the requirements of the Conservation Practice Standard, Irrigation Water Management, Code 449 (check with your local NRCS Field Office for a copy of the practice standard).
2. Development and utilization of an irrigation prescription based on soil characteristics, topography, or crops.
   a. Use of a GPS guidance and control system which will provide for the variable application of irrigation water based on variations of soils, topography, or crops; *or*
   b. Use of an automated control system based on technologies other than GPS which will provide for variable application of irrigation water based on variations of soils, topography, or crops.

Adoption Requirements
This enhancement is considered adopted when GPS guided variable rate irrigation or other innovative technologies have been installed on the irrigated acres in the selected land use.

Documentation Requirements
1. Documentation showing the operation of a variable rate irrigation system and how it accounted for variations of soils, topography, or crops, and
2. Copy of the irrigation prescription and irrigation logs.

References

Evans, R., J. LaRue, K. Stone, B. King. 2012. Adoption of site-specific variable rate sprinkler irrigation systems. http://www.ars.usda.gov/research/publications/publications.htm?SEQ_NO_115=279907

King, B. A. and D.C. Kincaid. 2004. Variable Flow Rate Sprinkler for Site-Specific Irrigation Management. http://eprints.nwisrl.ars.usda.gov/6/1/1144.pdf

Sadler, E.J., C.R. Camp, D.E. Evans, L.J. Usrey. 1996. A Site Specific Center Pivot Irrigation System for Highly-Variable Coastal Plain Soils. http://naldc.nal.usda.gov/catalog/17999

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Automated control systems not dependent on GPS may include above- or below-ground cables for system guidance. Real-time sensors for a variety of parameters (e.g., soil moisture, canopy temperature), remotely sensed data, etc., may be used in automated systems.

This activity may NOT be used with the following enhancements:
ANM21

Potential Duplicate Practices:
449 – Irrigation water management