

Water Quantity Enhancement Activity – WQT07 – Regional weather networks for irrigation scheduling



Enhancement Description

Crop evapotranspiration (crop ET) information from a regional weather network is utilized as a part of the irrigation water management plan for irrigation scheduling. Water use is planned and adjustments in application rates and timing are made using the regional weather network data.

Land Use Applicability

Cropland, Pastureland

Benefits

The use of data from regional weather networks can improve a farmer’s estimate of evapotranspiration from irrigated crops. This information combined with local rainfall data and monitoring of soil moisture can significantly improve the accuracy of irrigation timing and application rates. Benefits include reduced aquifer depletion, and reduced runoff and deep percolation, both of which reduce movement of agrichemicals from farm fields to aquifers, lakes, and streams.

Conditions Where Enhancement Applies

This enhancement applies to irrigated cropland or pastureland where regional weather data is not currently used to schedule irrigation events.

Criteria

This enhancement requires:

1. A subscription to a regional weather network that supplies crop ET values for irrigation scheduling.
2. The crop ET information from the network must be used as part of the irrigation water management plan to match water application rates and timing to the needs of the crops and soils.

Adoption Requirements

This enhancement is considered adopted when the applicant has a valid subscription to a regional weather service, has developed an irrigation water management plan based on the ET data from the regional weather network and has a record of irrigation events based on the ET data from the regional weather network.

Documentation Requirements

1. Documentation of subscription to a regional weather network.



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2. An irrigation water management plan showing the use of the crop ET data from a weather network in irrigation scheduling.
3. A record of actual irrigation events based on the ET data from the weather network.

References

Elliott, R.L., K.G. Hubbard, M.D. Brusberg, M.J. Hattendorff, T.A. Howell, T.H. Marek, R.L. Snyder. 2000. The Role of Automated Weather Networks in Providing Evapotranspiration Estimates. Proceedings of the 4th Decennial National Irrigation Symposium. November 2000. pp 243-250.

<http://www.cprl.ars.usda.gov/wmru/pdfs/The%20role%20of%20automated%20weather%20networks%20in%20providing%20evapotr.pdf>

Pierce, F.J. and T.V. Elliott. 2008. Regional and on-farm wireless sensor networks for agricultural systems in Eastern Washington. <http://www.sciencedirect.com/science/article/pii/S0168169907001664>



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IDAHO ADDENDUM 2013

Water Quantity Enhancement Activity – WQT07 – *Regional Weather Networks for Irrigation Scheduling*

Additional guidance for irrigation scheduling:

Irrigation scheduling is the implementation of an Irrigation Water Management (IWM) plan. An IWM plan establishes a framework for determining how much irrigation water to apply and when to apply it. An objective of IWM is to provide adequate irrigation water to meet crop needs, while minimizing losses to surface and/or ground water that could impact water quality.

Regional weather networks can be used in conjunction with other efforts to decide and/or predict when and how much to irrigate. Those intended for the agricultural sector, like the AgriMet system in the Pacific Northwest, provide crop water use estimates (crop evapotranspiration, or ETc) that are utilized as part of an IWM plan's decision making framework. There are also private fee-for-service networks available.

For more specific information on Agrimet, IWM plans, and recordkeeping that demonstrates implementation, refer to:

AGRIMET, *The Pacific Northwest Cooperative Agricultural Weather Network*.
<http://www.usbr.gov/pn/agrimet/>

NRCS National Engineering Handbook, Part 652, *Chapter 10 – Irrigation Guide*, Idaho Supplement #6. (available in Field Office).

NRCS General Manual, 450-GM, Idaho Amendment #20, ID407.10(c). (available in Field Office).

University of Idaho Cooperative Extension, *Idaho Drought Resources*.
<http://www.uiweb.uidaho.edu/extension/drought/>

University of Idaho Cooperative Extension, *Irrigation Scheduling Using Water Use Tables*. www.cals.uidaho.edu/edcomm/pdf/CIS/CIS1039.pdf

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

Potential Duplicate Practices:
449 – Irrigation water management