Irrigation Water Management

WA-449

Washington NRCS Conservation Practice – Fact Sheet **May 2014**

Definition

The process of determining and controlling the volume, frequency and application rate of irrigation water in a planned efficient manner.

Purpose

IWM is a NRCS conservation practice standard applied as part of a conservation management system to support one or more of the following:

- Manage soil moisture to promote desired crop response.
- Optimize use of available water supplies.
- Minimize irrigation induced soil erosion.
- Decrease non-point source pollution of surface and groundwater resources.
- Manage salts in the crop root zone.
- Manage air, soil, or plant micro-climate.
- Proper and safe chemigation/fertigation.
- Improve air quality by managing soil moisture to reduce particulate matter movement.
- Reduce energy use.

Where Used

This practice applies to irrigated lands. An irrigation system adapted for site conditions (soil, slope, crop grown, climate, water quantity and quality, etc.) must be available and capable of efficiently applying irrigation water to meet the intended purpose(s).

Plans and Specifications

Plans and specifications shall be prepared in accordance with NRCS Practice Standard 449 - Irrigation Water Management.

Site-specific requirements shall be included in the IWM plan based on the following factors:

- Capacity of the irrigation system.
- Seasonal crop watering demands.
- Amount of water in the soil profile and soil water holding capacity.
- Expected weather conditions.

The IWM plan shall specify:

- Irrigation interval (time between irrigations).
- Irrigation set time (time water is applied).
- Application rate (rate at which water is applied).

Use county level *Soil Survey* data and guidance from NRCS National Engineering Handbook, Part 652 – WA *Irrigation Guide* or locally accepted references to calculate values such as application rates for various irrigation systems and to estimate water holding capacities of soils.

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Monitoring

Decisions on where to locate and how many soil moisture monitoring stations to install may be based on a number of conditions, including but not limited to:

- Soils
- Field size and shape
- Crop
- Field slope

A minimum of one soil moisture monitoring station shall be located in each field. Soil moisture monitoring stations shall be comprised of two sensors placed at different depths. Depth of soil moisture devices will be dependent on the factors above but generally a shallow probe (8”-12”) will be installed for irrigation scheduling decisions and a deeper probe (24”-36”) for deep percolation monitoring.

One monitoring station may be adequate where soils are uniform and all irrigation decisions are on a field wide basis. Where other factors affect the need for more stations, locate them in areas where the monitoring stations will best measure the factors controlling irrigation timing.

Your soil moisture monitoring system may be installed by you or a vendor/contractor with rented or purchased equipment. If you decide to monitor your own system, NRCS can provide technical guidance.

Examples of advanced soil moisture monitoring methods and equipment include:

Telemetry type system– for access from a remote site, continuous data monitoring. Minimum of 1 station installed for the season per field, data recorded a minimum of once per day.

Data Logger – automated moisture sensor probes. Minimum of 2 probes installed for the season per field, data recorded a minimum of once per day.

Irrigation Service – using a neutron probe in each field, readings will be taken a minimum of once per week.

On-Line – Daily Advisory Management Program that is web based such as IWMO (Irrigation Water Management ~On-Line) developed by NRCS and Oregon State University or the WSU web based scheduler program.

Regardless of the monitoring system you choose, NRCS will inventory your system and discuss appropriate options with you.

Timing

A soil moisture monitoring system shall be installed prior to the first irrigation and monitoring shall occur from the first irrigation through the last irrigation of the season.

Certification of Records and Payment

Records shall be kept of all rainfall and irrigation events during the growing season, including application amounts and time of operation.

Records will be maintained for the season and submitted to NRCS after the crop growing season. NRCS is responsible for ensuring that adequate documentation has been completed to validate monitoring of your irrigation system and to certify completion for payment.

Contact Information

Please contact your local NRCS office with questions or request assistance before, during or after the irrigation season.