

Irrigation Water Management Plan - Written Criteria

Practice/Activity Code (118) (NO.)

1. Definition of an Irrigation Water Management Plan

The objective of Irrigation Water Management (IWM) is to control the volume, frequency, and rate of water for efficient irrigation, and for the following purposes:

- Promote desired crop response.
- Optimize the use of available water supplies.
- Improve water quality, by reducing irrigation sources of surface and ground water contamination.
- Minimize irrigation induced soil erosion.
- Improve soil environment for vegetative growth.
- Manage salts in the root zone.
- Improve air quality, by reducing movement of particulate matter.
- Provide appropriate and safe fertigation and chemigation.
- Reduce energy consumption.

The objective of an Irrigation Water Management Plan (IWMP) is to provide the producer a guide for the proper management and application of irrigation water resources. The potential benefits of IWM can be effectively determined by interviewing the producer to identify fields, soils, crops, climate, and available water supply; measuring the volumes of water withdrawn or applied; determining irrigation system uniformity, selecting a method to schedule irrigations, and then combining these components to produce an IWMP for the farm.

2. IWMP General Criteria

This section establishes the minimum criteria to be addressed in the development of Irrigation Water Management Plans.

A. General Criteria

1. The Irrigation Water Management Plans shall be developed by certified Technical Service Providers (TSPs). In accordance with Section 1240 (A), the Environmental Quality Incentive Program (EQIP) program provides funding support through contracts with eligible producers to obtain services of certified TSPs for development of Irrigation Water Management Plans. The specific TSP criteria required for Irrigation Water Management Plan development is located on the TSP registry (TechReg) web site at:

<http://techreg.usda.gov/>

2. The IWMP should address the resource concerns identified, and the conservation practices needed to comprise a conservation system for IWM. In addition, the IWMP should be based on the economics of water use, energy consumption, and crop yield. Management may be limited by water (deficit irrigation), or limited by land (unlimited water). The two general management schemes for irrigation water conservation in agriculture are: Demand Management (reducing withdrawals or reducing crop requirements), and Supply Management (increasing water storage, yield, or supplies).

The technologies available for Demand Management include:

- Irrigation scheduling;
- Increased system uniformity;
- Increased irrigation efficiency;
- Reduced water evaporation;
- Reduced soil evaporation (utilize crop residue or mulch);
- Reduced water use by non-beneficial vegetation;
- Limited irrigation (applying less than maximum ET_c);
- Crop selection (lower ET_c or drought resistant strains);
- Decision-making models (optimize water, energy, and nutrient use); and
- Conversion of irrigated cropland to dry land farming.

The technologies available for Supply Management include:

- Increased water storage capacity;
- Groundwater recharge;
- Water harvesting;
- Vegetative management for increased watershed runoff;
- Reuse of waste or drainage water; and
- Water transfers.

C. IWMP Technical Criteria: The IWMP should include, but not be limited to, the following components:

1. Farm and field information:
 - a. Name of producer;
 - b. Farm number;
 - c. Field and/or tract number;
 - d. Crops grown and planned rotation by field;
 - e. Name of employee or consultant developing plan; and
 - f. Date of plan development.
2. The objectives of the producer, which should involve one of the purposes listed in CPS 449, Irrigation Water Management.
3. A soils map that includes field boundaries, with the predominant soils listed and area quantified. If the qualifying acres for the plan are a subset of fields, the boundaries of the IWMP acreage should also be delineated.
4. An irrigation system map that includes the size, materials, and locations of the mains, laterals, and application systems.
5. Documentation of past water withdrawals and applications, by crop.
6. The methods planned to measure or quantify future water withdrawals and irrigation applications.
7. Planned water application volumes, on a seasonal and/or annual basis, and by crop.
8. Soil tests, to include nutrient levels and salinity. Water tests, including nutrients, pathogens, salinity, pH, and trace elements should be included.

9. Estimates of irrigation system uniformity, based on testing, evaluation, or observation. Distribution Uniformity (DU) should be based on the ratio of the average depth infiltrated in the low one-quarter of the field, to the average depth infiltrated over the entire field.
10. Documentation of the scientific method planned for scheduling the timing and amount of irrigation applications, based on the measurement or estimation of soil moisture, and the measurement or prediction of evapotranspiration (ETc) of the crop(s). The proposed irrigation scheduling method should include:
 - a. Estimated volume of water applied, by field, irrigation event, season, and/or year.
 - b. Estimated frequency or timing of irrigation applications, by field.
 - c. Estimated application rates and depths of irrigation events.
11. Conservation plan (record of decisions) (*Utilizing Customer Service Toolkit – Plug-In or MsWord Document*) to address the identified environmental risks associated with pest suppression activities with implementation specifications and other resource concerns. The record of decisions shall include the planned practice(s), schedule for implementation, and site specific specifications to apply the conservation practice. The site specific specifications can be on an NRCS Jobsheet available for the conservation practice or in a narrative form for the non-engineering type practices. Planned engineering type practices shall include the conservation practice, schedule of implementation, and identified on the plan map. The plan may include, but are not limited to the conservation practices listed below:
 - Irrigation Water Management (449)
 - Irrigation System, Micro (441)
 - Irrigation System, Sprinkler (442)
 - Residue and Tillage Management, Mulch Till (345)
 - Residue Management, No Till/Strip Till/Direct Seed (329)
 - Cover Crop (340)
 - Nutrient Management (590)
 - Waste Utilization (633)
 - Pest Management (595)
12. An Operation and Maintenance plan, to include a check list of items to eliminate non-beneficial system losses.
13. A signature page, with names, dates and signatures of all contract holders and the person who prepared the plan.
14. The IWMP components shall be assembled into one complete plan.

Deliverables:

1. Deliverables for the Client – a hardcopy of the plan that includes:

- All of the items listed in the 118 Irrigation Water Management Plan Checklist (including other attachments as specified).

2. Deliverables for NRCS Field Office:

- All of the items listed in the 118 Irrigation Water Management – Written, Plan Checklist (including other attachments as specified).