NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
SOUTH DAKOTA SUPPLEMENTS ITALICIZED

IRRIGATION WATER MANAGEMENT

(ac.)
CODE 449

DEFINITION

Determining and controlling the rate, amount, and timing of irrigation water in a planned and efficient manner.

PURPOSE

To effectively use available irrigation water supply in managing and controlling the moisture environment of crops to promote the desired crop response, to minimize soil erosion and loss of plant nutrients, to control undesirable water loss, and to protect water quality.

CONDITIONS WHERE PRACTICE APPLIES

This practice is suited to all areas that are suitable for irrigation and that have a water supply of suitable quality and quantity.

An adapted conservation irrigation system must be available, either a portable system or a system that is established on the land to be irrigated.

The irrigator shall have a knowledge and capability to manage and apply irrigation water in such a manner that the objectives mentioned under "Purpose" can be reasonably attained. The knowledge should include:

1. How to determine when irrigation water should be applied, based on the rate of water used by crops and on the stages of plant growth.
2. How to measure or estimate the amount of water required for each irrigation, including the leaching needs.
3. The normal time needed for the soil to absorb the required amount of water and how to detect changes in intake rate.
4. How to adjust stream size, application rate, or irrigation time to compensate for changes in such factors as intake rate or the amount of water to be applied.
5. How to recognize erosion caused by irrigation.
6. How to estimate the amount of irrigation runoff from an area.
7. How to evaluate the uniformity of water application.

PLANNING CONSIDERATIONS FOR WATER QUANTITY AND QUALITY

***Water* Quantity**

1. Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, and deep percolation, and ground water recharge.
2. Potential for a change in plant growth and transpiration because of changes in the volume of soil water.
3. Effects on downstream flows or aquifers that would affect other water uses or users.
4. Effects on the volume of downstream flow that could cause undesirable environmental, social, or economic effects.
5. The effect on the water table of the field in providing a suitable rooting depth for anticipated land uses.
6. Potential use of irrigation water management.

***Water* Quality**

1. Effects on erosion and the movement of sediment and soluble and sediment-attached substances carried by runoff.
2. Effects of nutrients and pesticides on surface and ground water quality.
3. Effects on the movement of dissolved substances below the root zone or to ground water.
4. Effects of water levels on soil nutrient processes such as plant nitrogen use or denitrification.
5. Effects of water control on the salinity of soils, soil water, or downstream water.
6. Short-term and construction-related effects on the quality of downstream water courses.
7. Effects on the temperatures of water resources that could cause undesirable effects on aquatic and wildlife communities.
8. Effects on wetlands or water-related wildlife habitats.
9. Effects on the visual quality of water resources.

Laws and Regulations

This practice must conform to all federal, state, and local laws and regulations. Laws and regulations of particular concern include those involving water rights, land use, pollution control, property easements, wetlands, preservation of cultural resources and endangered species.

PLANS AND SPECIFICATIONS

The irrigation water management plan shall be in keeping with the purpose and principles in this standard.

Instead of an actual evaluation at each irrigation, evidence that the physical layout of the irrigated area meets the requirements of a conservation irrigation system plus the technician's evaluation as to the knowledge and use of the principles of water management by the irrigator is acceptable in determining that good water management is being practiced.

OPERATION AND MAINTENANCE

For this practice, operation and maintenance will be incorporated into the overall plan.