

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD

**IMPROVED WATER APPLICATION**

(acre)  
CODE 743 CA INTERIM

**DEFINITION**

Applying irrigation water using a planned conservation irrigation system before all the system components are installed, or when operational changes have been made and where definite action has been taken to improve irrigation effectiveness, distribution uniformity or to reduce erosion.

**Scope**

The application of this practice is a step towards achieving irrigation water management, as defined by Conservation Practice Standard 449.

**PURPOSES**

To assist farmers in improving the efficiency of the use and application of irrigation water; to reduce erosion, salt accumulation, and to improve water quality.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice is suited to all areas suitable for irrigation having a water supply of suitable quality and quantity. An adapted conservation irrigation system must either exist on the land or be in the process of being improved or installed.

**CRITERIA**

**Water Control**

Farm irrigation systems shall include such structures as measuring devices, division boxes, checks, turnouts, valves and gates, as needed, to control, regulate, and measure the water for efficient application.

**Application**

Changes have been made in the volume of water applied to achieve an increase in the irrigation efficiency; such as:

1. Reduction in the volume of water applied to refill the crop root zone.
2. A change the amount, rate, or timing of water being applied to the crop that leads to improved efficiency and no loss of crop production.
3. Reduction of erosion caused by irrigation.
4. An increase in the distribution uniformity of the applied water. Crop response can be an indication of the uniformity of application.
5. Changes in stream size to compensate for changes in intake rates.
6. Installation of one or more structural components that improve irrigation efficiency.

**CONSIDERATIONS**

**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.

**Water Quality**

1. Effects on the movement of sediment or soluble and sediment-attached substances carried by runoff.

2. Effects of nutrients and pesticides on surfaces 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 on the salinity of soils, soil water, or downstream water.
6. Short-term and construction-related effects on the quality of downstream water.
7. Effects of water temperature changes on aquatic and wildlife communities.
8. Effects on wetlands or water-related wildlife habitats.
9. Effects on the visual quality of water resources.

### **Endangered Species Considerations**

Determine if installation of this practice with any others proposed will have any effect on any federal or state listed Rare, Threatened or Endangered species or their habitat. NRCS's objective is to benefit these species and others of concern or at least not have any adverse effect on a listed species. If the Environmental Evaluation indicates the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects. Further assistance will be provided only if the landowner selects one of the alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

### **Basis of Acceptance**

Instead of an actual evaluation, evidence that there is a physical or operational change resulting in improved

water application is acceptable in determining that an improved water application has been achieved.

### **PLANS AND SPECIFICATIONS**

The improved water application plan shall be in keeping with the purpose and principles in this standard and shall describe the requirement for applying the practice to achieve its intended purpose.

### **OPERATION AND MAINTENANCE**

An operation and maintenance plan must be prepared by the Designer for use by the owner or others responsible for operating this practice. The plan should provide specific instructions for operating and maintaining the system to insure that it functions properly. It should also provide for periodic inspections and prompt repair or replacement of damage components.