

# Irrigation System / Trickle

## PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 441

04/02



### DEFINITION

A trickle system is a planned system in which all necessary components have been installed for efficient application of irrigation water directly to the root zone of the plants by means of emitters, orifices, or porous tubing.

### PRACTICE INFORMATION

Trickle irrigation refers to irrigation water being applied by means small diameter pipes and very low volume orifices or emitters that apply the water directly to the plant root zone. This method of irrigation is very efficient and is normally utilized on a commercial basis when water is in short supply or very expensive.

The trickle method of irrigation is suited more for orchards, vineyards, and specialty crops. However, as water shortages develop trickle irrigation has potential for most field

crops. Trickle irrigation can be used on very steep slopes where other methods of irrigation would cause excessive erosion and runoff. This method is also well suited for home gardens and systems are often automated with electric solenoids and timers.

A trickle irrigation system must be designed as an integral part of a conservation plan based on the capabilities of the natural resources and the needs of the farm enterprise. The planned system must be suited to the site conditions and the crops to be grown.

Additional information including design criteria and specifications are in the local NRCS Field Office Technical Guide.

The following pages list the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, and soil.

Users are cautioned that these effects are estimates that may or may not apply to a specific site.

## CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

STATE		FIELD OFFICE	DATE
<b>PRACTICE:</b> 441 Irrigation System - Trickle		NOTES:	
<b>RESOURCE: SOIL</b>			
<b>RESOURCE CONCERN: EROSION</b>			
<b>RESOURCE INDICATORS</b>		<b>PHYSICAL EFFECTS</b>	
SHEET AND RILL		moderate reduction in sheet and rill erosion	
WIND		moderate reduction in wind erosion	
EPHEMERAL GULLY		moderate reduction in ephemeral gully erosion	
CLASSIC GULLY		N/A	
STREAMBANK		N/A	
IRRIGATION INDUCED		moderate reduction in irrigation induced erosion	
SOIL MASS MOVEMENT		N/A	
ROADBANK/CONSTRUCTION		N/A	
OTHER			
<b>RESOURCE CONCERN: SOIL CONDITION</b>			
SOIL TILTH		N/A	
SOIL COMPACTION		N/A	
SOIL CONTAMINATION			
• SALTS		N/A	
• ORGANICS		N/A	
• FERTILIZERS		N/A	
• PESTICIDES		N/A	
• OTHER			
DEPOSITION/DAMAGE			
• ONSITE		moderate reduction/onsite deposition damage	
• OFFSITE		moderate decrease/offsite deposition damage	
DEPOSITION/SAFETY			
• ONSITE		moderately improve onsite safety/deposition	
• OFFSITE		moderately improve offsite safety hazard/depos.	
OTHER			
<b>RESOURCE: WATER</b>			
<b>RESOURCE CONCERN: WATER QUANTITY</b>			
SEEPS		insignificant	
RUNOFF/FLOODING		N/A	
EXCESS SUBSURFACE WATER		N/A	
INADEQUATE OUTLETS		N/A	
WATER MGT. IRRIGATION			
• SURFACE		significant improvement in irrigation efficiency	
• SPRINKLER		N/A	
WATER MGT. NON-IRRIGATED		N/A	
RESTRICTED FLOW CAPACITY (H2O convey.)			
• ONSITE		N/A	
• OFFSITE		N/A	
RESTRICTED STORAGE		N/A	

<b>RESOURCE: WATER</b>	
<b>RESOURCE CONCERN: WATER QUALITY</b>	
<b>RESOURCE INDICATORS</b>	<b>PHYSICAL EFFECTS</b>
<b>GROUNDWATER CONTAMINANTS</b>	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• PATHOGENS	N/A
• OTHER	
<b>SURFACE WATER CONTAMINANTS</b>	
• PESTICIDES	N/A
• NUTRIENTS AND ORGANICS	N/A
• SUSPENDED SEDIMENTS	moderate reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	N/A
• SALINITY	N/A
• HEAVY METALS	N/A
• WATER TEMPERATURE	N/A
• PATHOGENS	N/A
<b>AQUATIC HABITAT SUITABILITY</b>	moderate improvement in Aqua. Hab. Suit.
<b>OTHER</b>	
<b>RESOURCE: AIR</b>	
<b>RESOURCE CONCERN: AIR QUALITY</b>	
<b>AIRBORNE SEDIMENT AND SMOKE PARTICLES</b>	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
<b>AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS</b>	N/A
<b>AIRBORNE CHEMICAL DRIFT</b>	N/A
<b>AIRBORNE ODORS</b>	N/A
<b>FUNGI, MOLDS, AND POLLEN</b>	N/A
<b>OTHER</b>	
<b>RESOURCE CONCERN: AIR CONDITION</b>	
<b>AIR TEMPERATURE</b>	N/A
<b>AIR MOVEMENT (windbreak effect)</b>	N/A
<b>HUMIDITY</b>	N/A
<b>OTHER</b>	



<b>RESOURCE: HUMAN</b>	
<b>RESOURCE CONCERN: SOCIAL CONSIDERATIONS</b>	
<b>RESOURCE INDICATORS</b>	<b>PHYSICAL EFFECTS</b>
PUBLIC HEALTH AND SAFETY	N/A
PRIVATE/PUBLIC VALUES	N/A
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	insignificant risk involved
TENURE	N/A
OTHER	
<b>RESOURCE CONCERN: CULTURAL CONSIDERATIONS</b>	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	