USDA NRCS

Irrigation Water Management - 449
Irrigation System and Management Rating Tool (I_SMRT)

KS-ENG-396
10/06

Name _____ Ident. No./Field No. _____

Legal Desc. _____ County _____

Designed by _____ Date _____

Checked by _____ Date _____

Approved by _____ Date _____

Original System

A	Irrigation System Type		
B	Soil Surface Disturbance		
C	Surface Evaporation Losses		
D	Scheduling Control		
	Rating Value = (A x B x C x D)	= (A) ____ x (B) ____ x (C) ____ x (D) ____ =	

Modified System

A	Irrigation System Type		
B	Soil Surface Disturbance		
C	Surface Evaporation Losses		
D	Scheduling Control		
	Rating Value = (A x B x C x D)	= (A) ____ x (B) ____ x (C) ____ x (D) ____ =	

Support Documentation for Data Entries

A Irrigation System Type	**Initial Rating**
Surface Irrigation - Basic (Earthen conveyance ditch and siphon tubes or cutouts)	50
Surface Irrigation - Basic (Earthen conveyance ditch, siphon tubes or cutouts, land leveled)	60
Surface Irrigation - Basic (Earthen conveyance ditch, gated pipe, land leveled, tailwater reuse)	70
Surface Irrigation - Improved (Delivery pipeline, gated pipe)	70
Surface Irrigation - Improved (Delivery pipeline, gated pipe, land leveled)	75
Surface Irrigation - Improved (Tailwater reuse, land leveled, delivery pipeline, gated pipe)	80
Center Pivot [1/ 2/] and Linear Move - Sprinklers on top of pipe	80
Center Pivot [1/ 2/] and Linear Move - Nozzles below lateral but > 6 ft height above ground	85
Center Pivot [1/ 2/] and Linear Move - Nozzles near ground (in canopy)	87
Center Pivot and Linear Move - Low Energy Precision Application (LEPA)	92
Sprinkler - Solid Set	75
Sprinkler Irrigation - Traveling Gun	70
Sprinkler Irrigation - Side Roll	70
Subsurface Drip Irrigation (SDI)	92

[1/] When the center pivot system includes an end gun, reduce the system rating by 5.

[2/] When the center pivot system includes a corner system (trailer section), reduce the system rating by 3.

B Soil Surface Disturbance	**Modifier**
Disturbed Soil Surface (multiple tillage operations: < 30% crop residue)	0.83
Limited Soil Surface Disturbance (minimum till, conservation till, mulch till: >= 30% crop residue)	0.93
Undisturbed Soil Surface (strip till, no till, direct seed)	1.00

C Surface Evaporation Losses	**Modifier**
All Surfaces Wetted - Depth of Application < 0.5 inch	0.70
All Surfaces Wetted - Depth of Application > 0.51 to 1.1 inches	0.80
All Surfaces Wetted - Depth of Application > 1.1 inches	0.90
Soil Wetting Confined to Furrows	0.96
No Surface Wetting	1.00

D Scheduling Control	**Modifier**
Limited (Large application depths - furrow flow - deep percolation)	0.80
Fair (Generally heavy application depths - more water than root zone can hold or no scheduling)	0.90
Good (Application depths matched to evapotranspiration (ET) and/or soil conditions)	0.96
Precise (Application depth matched to transpiration [T])	0.98