

Irrigation Water Management Plan for Subsurface – Flow Through Irrigation System

IRRIGATION WATER MANAGEMENT PLAN

DATE:	<i>4/06</i>
COOPERATOR:	<i>T.O. Dry, Jr.</i>
LOCATION:	<i>Sebring, Highlands County</i>
FIELD NUMBER:	<i>1</i>
CROP:	<i>Small Vegetables</i>
GROWING SEASON:	<i>December 1 – March 31</i>
ROOTING DEPTH:	<i>18 in</i>
PEAK CONSUMPTIVE USE RATE:	<i>0.18 in/day</i>
IRRIGATION SYSTEM:	<i>Flow-through subirrigation system with 28 furrows of different lengths on 60-foot spacing requiring a total of 161 gpm. Well capacity = 300 GPM at 5 ft drawdown.</i>
WATER SUPPLY:	<i>6" diameter well</i>
PREDOMINATE SOIL SERIES:	<i>Immokalee fine sand</i>

A flow-through subirrigation system is to be installed. A minimum water delivery rate of 7 gpm/acre shall be available in order that your irrigation system meets the peak water demand period of the crop. A system which is capable of delivering 10 gpm/acre gives you more management options and allows you to meet the peak water demand of the crop without running the pump for 24 hours a day.

The system shall be operated with the water table controlled within a range of 18 to 24 inches during crop establishment. Based on a peak consumptive use rate of 0.18 in/day, and a rate of upflux equal to 0.36 in/day, you should allow the water table depth to recede to no lower than 28 inches below the top of the bed.

The water table depth from the top of the bed shall be determined using observation wells placed within the field. The observation wells can be made from 4" PVC sand point (see enclosed observation well sheet) or with 4" drain tile with sock. The wells are approximately 40" long and installed in the ground until the top of the well is level with the top of the bed. Two observation wells shall be installed at the highest and lowest areas of the field.

The system shall be operated until the water table is approximately 18" from the top of the bed. This point will be reached after an outflow (tailwater) of 1 - 2 hours has occurred at the downstream end of the field. At that time, the system shall be turned off. When the water table recedes to a depth of approximately 24", the system shall be started again. Most of the water savings during the season will be possible during the early part of the season before the plants demand a great deal of water.

Using a water table depth range to determine the irrigation cycle is more practical and more accurately reflects the plant water use than trying to establish a regular irrigation interval such as two days on/one day off.

Soil moisture feel and appearance can be used to determine when to irrigate as per enclosed measuring soil moisture content sheet. Irrigate when soil moisture is 50% or less. Shut off irrigation system based on experience. It is recommended that observation wells be used in conjunction with the feel and appearance method.

The operator should consider correlating results from water table observation wells with those from soil moisture feel and appearance.

The irrigation system should be checked periodically to ensure proper operation of the system and to identify any problems with the system layout. A visual inspection should be performed during operation to determine if there are excessive tailwater losses to the system or significant erosion is occurring in furrows or ditches. Tailwater losses can be reduced by installing water table control structures in outlet drainage ditches, or allowing the water table to fluctuate within an allowable range. Water erosion can be controlled by structures at the ends of laterals, reducing the irrigation stream, structures in open ditches, and/or changing system layout to reduce slope in direction of irrigation.

Check the condition of the crop to ensure that growth is occurring and that the crop looks consistent in color and height to determine adequacy and uniformity of irrigation. If the application is not uniform, a system evaluation should be performed.

If there is change in the soil moisture monitoring method or irrigation method, the NRCS office in Sebring, Florida should be contacted.