Irrigation Water Management
Small Scale Solutions for your Farm

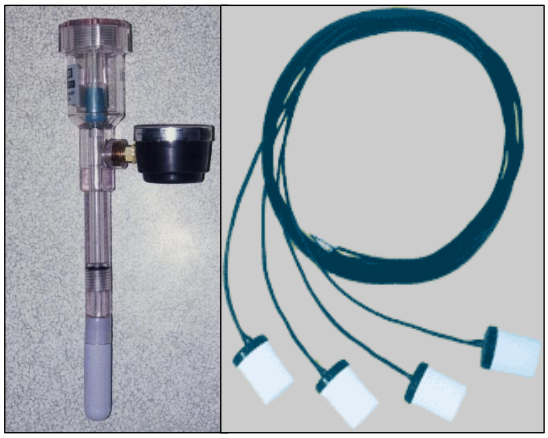
NRCS
Natural Resources Conservation Service

Are you getting the most out of your irrigation system?

- Do you run out of water when you need it most
- Can't decide when to irrigate
- Do you sometimes over apply water
- Do you feel like you are wasting water

Irrigation water management (IWM) is a plan to help you know when and how much to irrigate, and then applying the irrigation water in a planned and efficient manner.

Farmer discussing irrigation water management



Tensiometer *Gypsum blocks*

Know the efficiency of your irrigation system

An efficient irrigation system will apply water evenly across your crop field without wasting water by leaking or applying water so fast it runs off the field without soaking in to the soil.

- You can run a test on your irrigation system by putting out catch cans and running the irrigation system for a measured amount of time.
- NRCS can help you analyze this information to determine the rate and how evenly water is being applied.
- NRCS can help you adjust your system to improve the performance.

Having a uniform application of water is important so you don't apply too much water in some places and too little in others. This wastes water and will wash fertilizer and other chemicals off your field and may cause pollution of ground and surface water.

Costs and Benefits:

- Cost can vary depending on the instruments and methods used.
- The basic tools like a rain gauge, spade and notebook cost less than $25.
- Tensiometers to measure soil moisture cost about $70 each and require at least two per field.
- Gypsum blocks are cheaper but need a $300 meter to read them.
- Rainfall & water use data can be downloaded from the internet.

Know when and how much to irrigate

There are two ways to schedule your irrigations. One is to measure the amount of water that is in the soil.

- You can learn to judge how much water is available to your crops by feeling a sample of the soil taken from the root zone of your crop.
- NRCS can provide you with training and information on how to do this.
- You can use tensiometers or gypsum moisture sensors to measure soil moisture.

Tensiometers work best in sandy soils. Gypsum blocks work better in heavier (clay) soils. Be sure you select the correct tool.

Checking the moisture in soil

The other method is to track the crop's use of water and to replace it when needed. This is called the checkbook method.

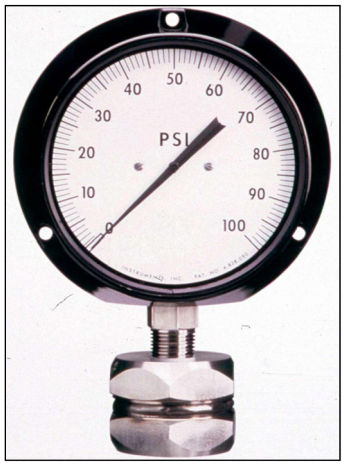
- You will need a rain gauge near your field. After it rains record in your note book the date and the inches of rainfall that has occurred.
- When you irrigate, write down the inches of water you gave the crop.
- NRCS can help you obtain information about how much water your crops use based on the weather.
- Soon you will have what looks like a checkbook with deposits of water by rain and irrigation and withdrawals of water by the crop.
- NRCS can help you understand when the balance in your notebook signals that irrigation is needed and how long to run your irrigation system.

This is called the checkbook method to schedule irrigation. The benefit to you is that you run your irrigation system only when it is needed, and only for as long as it is needed, saving you water, energy and money.

Know the capacity of your irrigation system

If you know the flow rate of your irrigation system and the size of your field you can figure out how long to run the system to deliver a set amount of water to your crops.

- A flow meter is a valuable tool in Irrigation Water Management. It is like a speedometer in a car.
- It will tell you how much water is being pumped through your irrigation system.
- Pressure gauges are another valuable tools. By checking the pressure near the pump and comparing it to the pressure at the end of the system you can tell if there are any problems in the system.
- NRCS can to tell you what the normal difference in pressures should be. If you see a big difference from that you will know something is wrong with your irrigation system.



Pressure Gage

Flow Meter

Irrigation Water management can help your operation by:

- Avoiding under- or over- watering crops
- Avoiding running out of water at critical times
- Reducing pumping costs by only applying water when it is needed and in the amounts needed
- Preventing erosion caused by irrigation water runoff

By practicing Irrigation Water Management you can improve your crop production and quality while conserving water and energy.

In order to be successful in using your irrigation system efficiently, you must learn how to use the available water to meet the needs of your crops. You need to know when to turn the system on, and how long to run the system. If you can do this, you will have mastered Irrigation Water Management.

Help is Available

NRCS Natural Resources Conservation Service

SMALL SCALE SOLUTIONS FOR YOUR FARM

Technical Help Is Available

Your local Natural Resources Conservation Service (NRCS) office has experienced conservationists that can assist you with irrigation water management. They can also help you develop a Conservation Plan to solve other problems you have identified on your farm.

There is no charge for our assistance. Simply call your local office at the number listed below to set up an appointment and we will come to your farm.

You may also be eligible to receive financial assistance, through a state or federal program. Your NRCS office will explain any programs that are available so you can make the best decision for your operation. All NRCS programs and services are voluntary.

Helping People Help the Land

For More Information Contact the:

Natural Resources Conservation Service

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Warwick, RI 02886
(401) 828-1300
Web Address: www.ri.nrcs.usda.gov
E-mail Address: NRCSInfo@ri.usda.gov

NRCS accepts applications on a continuous basis throughout the year.

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