Washington Irrigation NewsLetter

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BPA and WSU establish partnership for 1997 SIS (Scientific Irrigation Scheduling) Education Project

The Bonnevile Power Administration and Washington State University - Prosser established a partnership on a new project to help irrigation farmers increase their irrigation efficiencies and water management capabilities in central Washington. Tom Ley, Extension Irrigation Engineer, and Ginny Prest, Ag Research Technician at WSU- Prosser, are working on a new project that will focus on letting growers know the benefits of using Scientific Irrigation Scheduling (SIS) in a seven county area including Kittitas, Yakima, Benton, Franklin, Walla Walla, Grant and Adams.

The goals of this project are to 1) determine how many crop producers/landowners are already using some form of irrigation scheduling to determine water use and crop needs and 2) to provide demonstration projects that will show them the potential benefits of using SIS and new technologies that are available to crop producers.

What does this mean to a grower? Well, SIS may be coming soon to a farm near you. The demonstration projects will be done ***on-farm***, at least four fields per county. Each demonstration projects will consist of an irrigation system evaluation with the producer in the spring, as well as a early spring soil moisture analysis. Weekly soil moisture monitoring and irrigation forecasting utilizing the Washington Irrigation Forecaster (WIF) will be provided during the 1997 irrigation season. The software, training and technical support will be provided to cooperators so that they can use their new skills to schedule the other fields on their farm.

...SIS may be coming soon to a farm near you .....

There will also be educational workshops on SIS, the WIF software, and other irrigation BMP's in each of the counties at the beginning, during and at the end of the 1997 irrigation season, for more information see workshop listings on page 4, ***A workshop will be in your area soon!***

Ley and Prest will also be looking for new ways to measure soil moisture on-farm other than the currently accepted measuring devices, such as the neutron probe or TDR probe. WSU - Prosser will be field testing the new soil moisture probes to assess their reliability, ease of operation, and costs for equipment and labor.

Historically soil moisture monitoring has been performed by scientists, commercial consultants and irrigation specialists on the larger farms. Much of the equipment used, such as the neutron probe, requires a special license and are expensive to purchase. But as new technology becomes available, there is new equipment that is being developed that does not require a special license, that is portable and less expensive.

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Many of the larger farms will probably continue to utilize irrigation consultants, but it is hoped that the smaller sized farms may be able to utilize this technology so that they can schedule their irrigations too.

Funding for this project has been provided for by the Bonneville Power Administration.

And on the inside?

Scientific Irrigation Scheduling (SIS) is:

A Best Management Practice (BMP)
- **Water Quality Protection**
- **Water Conservation**
- **Energy Conservation**

A systematic process for determining:
- **When to irrigate**
- **How much to irrigate**
- **How to apply the desired amount**

Easily tailored to site specific conditions
- **Soils**
- **Crops**
- **Irrigation methods/systems**
- **Climate/weather**

Field soil water balance

Previous soil water level
+ Net irrigation
+ Effective rainfall
- Crop water use
= Current soil water level

SIS uses the includes the following parameters the determining a potential irrigation schedule

Soils Information
- **Water holding capacity**
- **Soil Depth**
- **Soil Structure**

Crop Information
- **Crop type**
- **Growth stage/development**
- **Rooting characteristics**
- **Water stress characteristics**

Irrigation system information
- **System type**
- **System capacity**
- **Application efficiency**
- **Application uniformity**
- **Desired operating parameters (set times, lengths, etc.)**

Climate/Weather
- **Evapotranspiration (ET) or Crop Water Use**
- **Daily weather data for computing ET**
- **Rainfall**
- **Exposure/Elevation**

What is Scientific Irrigation Scheduling (SIS)?

Scientific Irrigation Scheduling (SIS) is a best management practices (BMPs) available to all farmers. SIS is simply a process for balancing available water in the soil profile with crop water demand and the capacity of individual irrigation systems. It is uses soil moisture measurement information, irrigation system capacity, current and expected weather conditions, and crop water needs to determine an irrigation schedule that will allow producers to apply irrigation water at the right time and in the right amount.

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SIS has the potential to increase irrigation application efficiency by 10-30 percent. Irrigation scheduling can also save the producer money spent for energy costs. There are other benefits as well. There is less leaching to ground water resulting in optimized nutrient utilization and there is reduced irrigation return flows. SIS can result in conservation of water and energy, and decrease water quality degradation to surface and ground waters.

A lot of producers have enough experience with a crop to determine what the irrigation needs are, the know what they are doing. The great thing about irrigation scheduling, is that in the long run the grower will have a much better feel for what the water situation is in the soil profile for a particular crop in a particular field with a particular irrigation system. The down side of the process is right up front, learning how to manage this tool will take time, probably the most precious commodity a producer has when they are trying to manage everything else that is going on out in their fields.

WIF: Washington Irrigation Forecaster

The Washington Irrigation Forecaster (WIF) program is a softwar package designed to use updated soil moisture information or to estimate current water content of a field and provide an irrigation schedule for up to four weeks.

The program is designed to operate on an IBM-PC, IBM Compatibles, or PS/2 microcomputers with 320K or more RAM and DOS 2.1 or above.(These specs. mean if you have a neighbor who wants to throw away a computer, that computer grab it, it will probably work!)

WIF uses information about an individual field, it's irrigation system and local climate to determine the current water content of soil over the next few weeks and figure out an irrigation schedule to meet the crop needs for next week, or up to the next four weeks.

WIF consists of two programs and several datafiles. The first program helps a farmer create a data file about a specific field, let's call it Field John Doe. This file will have information about soils, the irrigation system capacity, crop information, etc. It is all information that has to do with FIELD JOHN DOE. The other program is the one that the farmer will use to schedule the irrigation for FIELD JOHN DOE. Sound pretty simple doesn't it?

Each week the farmer either takes a soil moisute reading or lets the computer figure it out "hypothecically". While the "hypo" mehtod might be the easiest and the quikest, it still leaves room for large error.

Some kind of routine soil moisture monitoring needs to take place for this to actually work right. But I will tell you right now, THE COMPUTER will make a SWAG (scientific wild a** guess). But that is exactly what it is - a guess.

He or she will sit down at the computer and work on it for maybe 5 minutes, that includes an avearge of the first time taking 1 hour cause you have to learn where on the screen to look for those dang directions, then you have to look for the F Keys (what ever they are).

You put in your current soil moisture readings (or let the computer figure it out). You go through several screens and Whal La ---- You have an irrigation schedule. Nothing magical, Nothing Hard, just five minutes and you have something to go off for a couple of weeks. Oh you should go back and redo it everyweek but in a reality based situation which I think you guy classify. You might not get to it every week. You just need to do it when you can. Fit it in.

PAWS- Public Agriiculture Weather Stations

Is it alive or not? I was recently at a the FArm Forum, and I was so surprized to hear that the PAWS was not going to be around anymore

Want to find out more? A workshop will be in your area soon !

Date	*Time*	*Meeting /Contact Information*	*Location*
Feb 5	**9 - Noon**	**Benton County Conservation District Meetings** **Contact Pat Daly, (509) 786-786-9230**	**WSU - IAREC, Bunn Road** **Prosser, WA**
Feb 11	**??**	**Potato IPM/SIS Workshop** **Contact ????**	**???**
Feb 12	**??**	**Potato IPM/SIS Workshop** **Contact ????**	**???**
Feb 25	**??**	**BCD** **Contact ????**	**???**
Feb 27	**???**	**Walla Walla SIS Workshop** **?????**	**???**
Mar 5	**???**	**Kittatas SIS Workshop** **?????**	**?????**

For more information about the SIS Project, future workshops, or other irrigation BMPs, please feel free to contact either one listed below:

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