Applying knowledge to improve water quality

Pacific Northwest

Regional Water Program

A Partnership of USDA NIFA
& Land Grant Colleges and Universities

Spring 2008
PNWWATER 134

One-Stop Water Shop

With the arrival of sunny days and blue skies comes the scorching hot days of summer in the desert. Though most people appreciate water to sustain crops and lawns, farmers and area residents sometimes underplay the importance of irrigation management. That is where a new web site comes in. Created at Washington State University's Irrigated Agriculture Research and Extension Center (IAREC) in Prosser, WA this unique site has been developed to assist with everything irrigation.

"The vision is to be one-stop shopping for all irrigation-related questions," says Troy Peters, irrigation engineer and extension irrigation specialist at IAREC. "This Web site is to help farmers be more productive and profitable by their irrigation management and, at the same time, improve the environment." The project began about a year ago. Troy moved here from Texas, where he conducted irrigation related research for the U.S. Department of Agriculture's Ag Research Service.

Brent Etzel created and designed the Web site. Troy provides content. "The Web site is in the beginning stages," says Troy. "It will contain a lot of information, but the main purpose is the calculator help. "It will have a lot of calculation tools. For example, someone may say, 'I have this much pressure and this nozzle size; what's my application rate?' Or 'how long do I leave sprinklers on to meet a crop's needs?'"

The site's calculation tools remove the guesswork from good irrigation management. Tools include unit conversions for flow rate, area, distance, time, volume, pressure, power, and precipitation. Other tools include:

- Required flow rate onto a specified area to meet maximum water use rate requirements of a particular crop.
- Pipeline pressure loss, which calculates the pressure or friction loss along a given length of a pipeline with a specified diameter.
- Water depth, applied to a specified area over a specified time span based on the given flow rate onto the field.
- Sprinkler application rate.
- Drip rate.
- Required water pump horsepower.
- Water application rate.

"Hopefully, our tools and links to other programs will enable people to download to their own computers to do their own irrigation scheduling," says Troy. The site is for farmers and urbanites complete with residential irrigators and agricultural irrigators frequently asked questions. For lawn and garden irrigators, questions are answered about how long to leave water on, designing and installing drip irrigation systems, and the features to look for in an irrigation timer. "Most people water their grass, but many set sprinkler systems and don't change them throughout the season," says Troy. "This isn't the best practice." He notes different amounts of water are needed at different times of the year. For agricultural irrigators, questions range from how much water specific crops need to evapotranspiration, and which irrigation systems best fit certain soil types to water quality issues.

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Pacific Northwest Regional Water Quality Coordination Project Partners

Land Grant Universities

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907-786-6311
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University Publications:
http://info.ag.uidaho.edu/Catalog/catalog.htm

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University Publications:
http://extension.oregonstate.edu/catalog/

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Water Resource Research Institutes
Water and Environmental Research Center (Alaska)
http://www.uaf.edu/water/

Idaho Water Resources Research Institute
http://www.boise.uidaho.edu/

Institute for Water and Watersheds (Oregon)
http://water.oregonstate.edu/

State of Washington Water Research Center
http://www.swwrc.wsu.edu/

Environmental Protection Agency
EPA, Region 10
The Pacific Northwest
http://www.epa.gov/r10earth/

Office of Research and Development, Corvallis Laboratory
http://www.epa.gov/wed/

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The Project
Land Grant Universities, Water Research Institutes, and EPA Region 10 have formed a partnership to provide research and education to communities about protecting or restoring the quality of water resources. This partnership is being supported in part by the USDA's National Institute of Food and Agriculture (NIFA).

Our Goal and Approach
The goal of this Project is to provide leadership for water resources research, education, and outreach to help people, industry, and governments to prevent and solve current and emerging water quality and quantity problems. The approach to achieving this goal is for the Partners to develop a coordinated water quality effort based on, and strengthening, indivudual state programs.

Our Strengths
The Project promotes regional collaboration by acknowledging existing programs and successful efforts; assisting program gaps; identifying potential issues for cross-agency and private sector collaboration; and developing a clearinghouse of expertise and programs. In addition, the Project establishes or enhances partnerships with federal, state, and local environmental and water resource management agencies, such as by placing a University Liaison within the offices of EPA Region 10.

"What's important about good irrigation practices is that we can save money, divert less water from the river and pump less, so we're saving money," says Troy.

The site's completion date is targeted for the second week of June, though much of it is already finished and available for public use. "I have a lot of great collaborators here that do research on crops, soils, diseases, etc.," says Troy. "I pull from their knowledge."

Tutorials are a useful feature of the web site, including lessons about the basics of plant-soil-water relations. Irrigation links may be useful to some, and include irrigation organizations, irrigation information, additional calculators and software, Northwest agriculture weather networks, Washington and other states' irrigation Extension sites, journals, and publications.

"There is a need for irrigation information to be disseminated," says Troy. "The Web is where most people go for it. We used to be able to go out and talk with farmers, but now they look on the Web. "We want to make sure this information is available. It's just a logical thing to do. It's on-demand. People can get the information quickly and comfortably."

The new web site location at: http://dns1.prosser.wsu.edu/irrigation/index.php.

Reprinted from The Benton REA Ruralite, June 2007, Audra Hoefer

This irrigated water management web site will be expanded over the coming months to meet irrigation management needs for the entire region—Alaska, Idaho, Oregon, and Washington. We will keep you posted as this site adds regional content.

National Water Quality Program Areas

The four land grant universities in the Pacific Northwest have aligned our water resource Extension and research efforts with eight themes of the USDA's National Institute of Food and Agriculture.

1. Animal Waste Management
2. Drinking Water and Human Health
3. Environmental Restoration
4. Nutrient and Pesticide Management
5. Pollution Assessment and Prevention
6. Watershed Management
7. Water Conservation and Management
8. Water Policy and Economics

This material is based upon work supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under Agreement No. 2008-51130-04734.