



Applying knowledge to improve water quality

# Pacific Northwest

## Regional Water Program

A Partnership of USDA CSREES  
& Land Grant Colleges and Universities

Summer 2005  
PNWATER 062

### 30 Years of Improving Water Quality

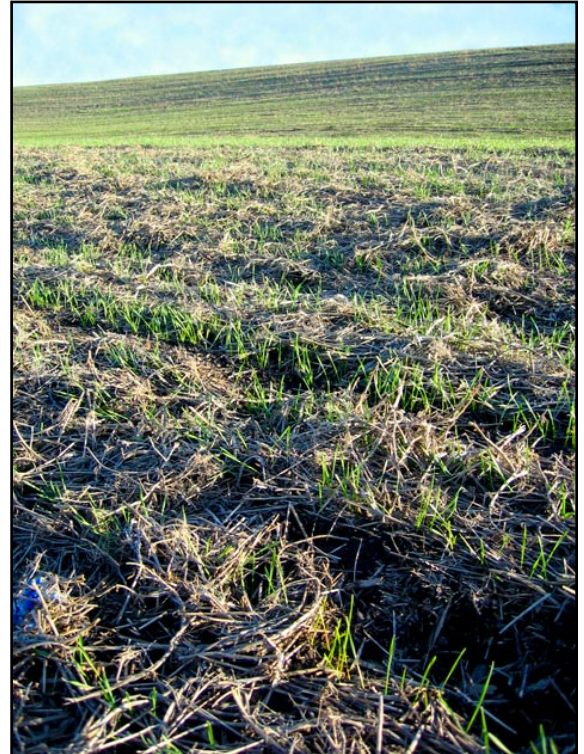
## *S.T.E.E.P. Protects Water Quality in the PNW*

Soil erosion adversely impacts over 10,000,000 acres of cropland in the Pacific Northwest. In the early 1970s farmers and university scientists in the region began expressing concern over the loss of productivity on croplands, especially those experiencing severe erosion. On many fields, over 12 inches of topsoil had been lost by water erosion processes in the previous 60 years. As a consequence of this concern, university and federal USDA-ARS researchers began meeting with farmers and agriculture commodity group representatives to address soil erosion and productivity losses in 1975. The result (STEEP) originated as a USDA Special Research grant in 1976 to address soil erosion and associated environmental quality and economic concerns.

STEEP (Solutions To Environmental and Economic Problems) has been an active regional program supported by USDA-CSREES for 30 years. Oregon State University, Washington State University, the University of Idaho, USDA-ARS, and USDA-NRCS are the major research and technology transfer partners associated with STEEP. Since 1976 over 120 research scientists have carried out studies through this program. Over the last five years annual funding for this program has ranged from \$450,000 to \$625,000. The majority of this funding has supported intermediate- and long-term systems research.

Some of the important accomplishments that the STEEP program has achieved in Idaho, Oregon, and Washington in the last 30 years include:

- ◆ Improved surface water quality in many of the region's watersheds
- ◆ Reduced rates of soil erosion on farmland
- ◆ Increased use of soil conservation practices including conservation tillage, reduced tillage, no-tillage, and direct seeding
- ◆ Development of reduced-tillage seeding implements to facilitate precision fertilizer placement and sowing under various residue loads and soil conditions
- ◆ New factors for soil erosion equations and methods of estimating soil erosion
- ◆ Demonstrated that breeding and technology advances have offset yield losses from soil erosion
- ◆ Integrated pest management (IPM) strategies for disease, weed, and insect control in reduced tillage systems
- ◆ New varieties of wheat, legumes, and mustards for reduced tillage systems and rotations
- ◆ On-farm testing program that serves as a model for technology transfer throughout the USA
- ◆ Formation of the Pacific Northwest Direct Seed Association (PNDSA) which promotes direct seeding in the region



## Pacific Northwest Regional Water Quality Coordination Project Partners

### Land Grant Universities

#### Alaska

Cooperative Extension Service  
Contact Fred Sorensen:  
907-786-6311

<http://www.uaf.edu/ces/water/>

University Publications:

<http://www.alaska.edu/uaf/ces/publications/>

#### Idaho

University of Idaho  
Cooperative Extension System  
Contact Bob Mahler: 208-885-7025

<http://www.uidaho.edu/wq/wqhome.html>

University Publications:

<http://info.ag.uidaho.edu/Catalog/catalog.html>

#### Oregon

Oregon State University  
Extension Service  
Contact Mike Gamroth: 541-737-3316

<http://extension.oregonstate.edu/>

University Publications:

<http://extension.oregonstate.edu/catalog/>

#### Washington

Washington State University  
WSU Extension  
Contact Bob Simmons:

360-427-9670 ext. 690

<http://wawater.wsu.edu/>

University Publications:

<http://pubs.wsu.edu/>

Northwest Indian College  
Contact Dan Burns:

360-392-4328

[dburns@nwic.edu](mailto:dburns@nwic.edu) or

<http://www.nwic.edu/>

### 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/>

For more information contact  
Jan Seago at 206-553-0038 or  
[seago.jan@epa.gov](mailto:seago.jan@epa.gov)

The success of STEEP is based, in large part, on active grower participation in establishing research priorities and making funding decisions. STEEP is administered by an 11 member technical committee composed of university, USDA-ARS, and USDA-NRCS personnel, and an 8 member grower committee composed of representatives from major crop commodity commissions, conservation tillage groups, and soil and water conservation districts.

STEEP has an important technology transfer component as two Extension Specialists support the program. Dr. Hans Kok ([hanskok@uidaho.edu](mailto:hanskok@uidaho.edu)) is the STEEP outreach coordinator for the University of Idaho and Washington State University. Dr. Don Wysocki ([dwysocki@oregonstate.edu](mailto:dwysocki@oregonstate.edu)) is the STEEP outreach coordinator for Oregon State University. The percentage of land farmed using reduced tillage methods has increased from less than 5 percent in 1975 to over 40 percent in Washington and Idaho and over 70 percent in eastern Oregon today. Both outreach coordinators carry the message of there being a strong tie between soil erosion control (conservation tillage) and improved surface water quality.

The following technology transfer products have been developed by the STEEP program:

- ◆ Conservation Tillage Handbook—over 155 publications dealing with agronomic, economic, and social issues pertinent to farming with conservation tillage systems are contained in this handbook which is regularly updated.
- ◆ STEEP List Server—provides direct interaction to resolve conservation tillage questions. Over 600 people subscribe to this site. Subscription to this list server is made via the STEEP web site.
- ◆ STEEP Web Site—<http://pnwsteep.wsu.edu>, contains research information, farmer case studies, conservation tillage handbook, and links to relevant web sites. This site averages almost 400 visitors per day.

Additional information about the STEEP program is available by directly contacting Dr. Hans Kok ([hanskok@uidaho.edu](mailto:hanskok@uidaho.edu)) or Dr. Don Wysocki ([dwysocki@oregonstate.edu](mailto:dwysocki@oregonstate.edu)).



### 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 Cooperative State Research, Education, and Extension System.

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

*CSREES is the Cooperative States Research, Education, and Extension Service, a sub-agency of the United States Department of Agriculture, and is the federal partner in this water quality program.*